PROBLEM-SOLVING SKILLS IN SUICIDAL PSYCHIATRIC PATIENTS

by

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STATEMENT OF THE PROBLEM

At present, suicide continues to remain one of the top ten leading causes of death in the United States (Beck, Kovaks, & Weissman, 1979). In human terms, this reflects a conservative estimate of 23.5 to 28,000 suicides per year in this country alone. Thus, Neuringer's (1974) estimate of one suicide each half-hour is no longer accurate. At this time, an estimate of one suicide every twenty minutes would be more correct.

Among adolescents, the suicide rate has been steadily increasing. While suicide still tends to be more common in those over forty, the alarming increase in the fifteen to twenty-four year age group has resulted in suicide becoming the third leading cause of death in this group (Weissman, 1974). In adolescent males, only accidents claim more lives (U.S. Bureau of the Census, 1976).

Indeed, these rates represent merely the tip of the iceberg. Less conservative estimates attribute as many as 75,000 deaths per year to suicide, with as many as 250,000 attempts annually (Litman & Wold, 1974). Suicide ideation appears to be even more common. In a poll of viewers watching a program on suicide, fifty-five percent indicated

that they had seriously contemplated suicide at some point in their lives (Warner-Amex Qube Poll, 1980). More dramatically, Stengel (1964) has asserted that, "there are few if any individuals to whom the idea of suicide has not occurred" (p.12).

Thus, one is compelled to agree with the statement by Welu (1977) that, "we are currently faced with a serious, endemic threat to public health which shows no signs of abatement" (p.17). Despite the obvious import of this situation, Kovacs, Beck, and Weissman noted in 1975 that there were are still no specific and practical guidelines to therapeutic interventions for the alleviation of suicidal behavior.

It is the contention of this author, that the continuing validity of this statement by Kovacs et al. (1975) is due in large part to the lack of a widely accepted paradigm for conceptualizing suicidal behavior. Recently, however, a number of investigators (Clum, Patsiokas, & Luscomb, 1979; Schotte & Clum, 1982) have integrated the existing literature in the area of suicide and proposed a life stress-cognitive rigidity model which appears to hold promise for both explaining suicidal behavior and for developing effective psychotherapeutic

interventions in this area.

This paper reviews the evidence for this model and presents the results of a research project designed to evaluate the specific nature of problem-solving skills within a sample of suicidal psychiatric patients. The implications of the findings of research in this area as they apply to theories of suicide and therapeutic interventions will also be discussed.

LITERATURE REVIEW

INCIDENCE RATES

Generally, the rate of suicide in this country ranges from twelve to thirteen per one hundred thousand population (U.S. Bureau of the Census, 1976), or 23.5-28,000 suicides per year. As noted previously, this reflects one suicide each twenty minutes in the United States alone.

A review of government data (U.S. Bureau of the Census, 1976) reveals that despite a relatively stable suicide rate ranging from 11-13/100,000 in this country, there have been several temporary upward trends. For example, in the period from 1905 to 1915, the suicide rate rose from 12.2-16.2/100,000 before decreasing to 12.3/100,000 in 1918. The suicide rate then remained relatively stable until 1926, when it began to climb from 12.0 to 17.4/100,000 in 1932. This depression era increase in suicide reduced to pre-trend levels over the following ten years. Since that time, the suicide rate has remained fairly constant, although there has been a mildly increasing trend during the 1970's. This latter trend, although it has been much discussed in the popular press,

reflects a relatively mild increase, in historical perspective, from a rate of 11.6/100,000 to a high of 13.3/100,000 in 1977.

SEX DIFFERENCES

In both the Unites States and foreign countries suicide rates are higher for males than for females, with males tending to commit suicide three to four times more often than females (U.S.Bureau of the Census, 1976). Suicide attempting, however, is more common among women than among men (Bancroft & Marsack, 1977; Bogard, 1970; Greer et al., 1966; Shneidman et al., 1970). A possible exception to this, however, was noted by Kreitman (1977) who found equal rates of attempting for older single persons and for individuals with a prior history of suicide attempts. These sex differences are one of the most stable findings in the suicide literature (Shneidman & Farberow, 1961). In general, as the potential lethality of the suicide method increases, the sex ratio of males to females increases monotonically (Marks, 1978). This difference in parasuicide methods employed does not appear to fully account for the discrepancy in suicide rates among males and females, leading Linehan (1978) to suggest that

differences among suicide completion and attempt rates might be due in part to differences in sex-role expectations.

REGIONAL VARIATIONS

The suicide rate within the United States also displays regional variation (U.S. National Center for Health Statistics, 1978). Individuals residing in the mountain states (e.g. Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah and Nevada) have a rate nearly double that of those in the mid-atlantic region (e.g. New York, New Jersey and Pennsylvania). In fact, Nevada has a rate triple that of New Jersey (24.8 vs 7.2/100,000), the lowest state.

CULTURAL VARIATIONS

The rate of suicide among males in the United States (25.0/100,000) is less than in many western nations, with the highest incidence reported (47.2/100,000) being in Austria (World Health Organization, 1980). Other western countries which surpass the United States are Switzerland (43.5/100,000), West Germany (37.7/100,000), Denmark (36.0/100,000), Sweden (33.1/100,000), France

(29.8/100,000), Japan (29.2/100,000) and Belgium (28.4/100,000). A similar pattern can be found among female suicides, with nine western nations showing suicide rates higher than the United States (World Health Organization, 1980). Thus, although the rate of suicide among Americans is disconcertingly high, it is considerably lower than in many western nations. Similar data is not available for communist block nations.

AGE DIFFERENCES

The rate of suicide also varies with age, and it is here where we see perhaps the most distressing statistics. Among young, white males aged fifteen to twenty-four, suicide is the second leading cause of death, preceded only by accidents (U.S. National Center for Health Statistics, 1978). Within this age group, the rate of suicide has also been increasing gradually among white males aged fifteen to twenty-five since 1950, with a more dramatic increase in the incidence rate from 13.9 to 22.9/100,000 in the period from 1970 to 1977 (Linden & Breed, 1976; U.S. Bureau of the Census, 1976). Among adolescents, suicide is more frequent among college students than among comparable persons who are not attending college; the rates appearing to be

particularly high for those completing graduate work (Seidan, 1966). The rate of attempted suicides has also been increasing in this age group (Davis, 1979). White females and non-white males in this group have also demonstrated increases, although these have been less pronounced. Interestingly, suicides among non-white females in this age bracket have decreased nearly twenty-five percent in the same period. The increase in the suicide rate among young white males has been largely balanced out by a small decrease in the suicide rate among white males aged thirty-five to sixty-four. White males over the age of sixty-four continue to have the highest incidence of suicide completion. Suicide attempting, on the other hand, decreases with age, with the peak incidence occurring before the age of thirty (Lester, 1972; Shneidman, 1976).

RACIAL DIFFERENCES

Suicide still remains higher among whites in this country than among non-white segments of the population (U.S. National Center for Health Statistics, 1978). White males suicide at a rate nearly double that of non-white males and among females the difference is slightly greater

(U.S. National Center for Health Statistics, 1978). Suicide attempting, however, appears to be more frequent among non-white females than among whites as a whole (Parkin, 1974; Pederson et al., 1973; Tuckman & Youngman, 1968).

SUICIDE METHODS

The most common method for suicide in the United States among males is gunshot, accounting for sixty-three percent of the total. Poisoning and hanging follow in decending order, each accounting for approximately fifteen percent. Miscellaneaous methods (e.g. jumping from high places, wrist slashing, etc.) account for the remaining five to ten percent (U.S. National Center for Health Statistics, 1978). Among females, poisoning is the most common method followed closely by gunshot, accounting for forty and thirty-six percent respectively. Hanging is the chosen method in another twelve percent of the cases and miscellaneous causes account for slightly over ten percent (U.S. National Center for Health Statistics, 1978).

MODAL SUICIDE

Taken as an aggregate, these statistics reflect a

modal suicide of a white male, sixty-five or older, living in the Midwest who commits suicide with a firearm. This can be contrasted with the modal suicide attempter, a young female who ingests a non-lethal drug dosage. In fact, this latter attempter is so common as to evoke only minimal professional intervention (Hankoff, 1975).

SUMMARY

As mentioned earlier, the rates listed here may well represent merely the tip of the iceberg. Less conservative estimates attribute as many as 75,000 deaths per year in this country to suicide with anywhere from 50-250,000 attempts (Farberow & Shneidman, 1961; Litman & Wold, 1974; Parker & Stengel, 1965; Shneidman, 1979; Stengel, 1968). Dublin (1963) has suggested that one percent of the population have attempted suicide at some time, leading to an estimate of over two million living attempters. Even more dramatic, studies aimed at a comprehensive count of attempted suicides within a given population suggest a rate of fifty or more attempts per each fatality (Fox, 1976; Wexler et al., 1978). Of those who attempt suicide, anywhere from thirty to fifty percent will go on to attempt again within one year (Clum, Luscomb, & Patsiokas, 1979).

In addition, if the estimates are accurate, ten to twenty percent of those who attempt will eventually die by suicide (Cohen, Motto, & Seidan, 1966; Dorpat & Ripley, 1967; Kreitman, 1977). Combined these figures give rise to a prediction of anywhere from 400,000 to 1.4 million potential suicides in this country alone.

There have been no epidemeologic studies to date of the incidence rate for suicide ideation in the general population. The results of a recent television survey (Warner-Amex Qube Poll, 1980), however, suggest that the number is quite high. In response to questions following a televised panel discussion on suicide, fifty-five percent of the respondents indicated that they had contemplated suicide at some point in their lives. More dramatic is Stengel's (1964) has assertion that, "there are few if any individuals to whom the idea of suicide has not occurred" (p.12).

The number of deaths by suicide in the United States and abroad, the apparently high rate of suicide attempts and the frequency of suicide ideation in the population all lend credence to the assertion by Welu (1977) that, "we are currently faced with a serious, endemic threat to public health which shows no signs of abatement" (p.17). In fact,

it appears that suicide and attempted suicide are increasing throughout most of the world (Brown, 1979).

METHODOLOGICAL PROBLEMS

The study of suicidal behavior poses numerous methodological problems. Perhaps foremost among these is the lack of accessibility to suicide completers. In order to compensate for the unavailability of these subjects several methods are employed.

First among these is the method of residuals (Shneidman & Farberow, 1960). Here, the suicide completer is studied through analysis of personal articles such as diaries, suicide notes, interviews with family members, etc. Naturally, most measurement instruments employed in suicide research (e.g. self-report measures) cannot be employed and much of the data is both retrospective and subject to distortions. Poor experimental control, observational distortion and questionable validity have contributed to the numerous contradictory findings obtained with this method.

Prospective research procedures, however, are often rendered infeasible by the relatively low base rate for suicide completion (around 11/100,000). For this reason,

suicide attempters are often employed as they have a much higher base rate for eventual suicide completion (Motto, 1965).

Attempts to generalize from one category of suicidal behavior, such as suicide attempters, to suicide completers are fraught with difficulties. Although this method has superficial face validity, experimental evidence (Farberow, 1950; Murphy, 1977; Stengel, 1964) tends to contradict the view that the only difference between these two groups is one of intensity or lethality of method.

We also do not know if measurement taken following a suicide attempt accurately reflects the state of the individual prior to attempting suicide. Not only can environmental feedback about the attempt impact on the individual, their different treatment in the hospital (e.g. suicide precautions and security) may also have an effect. Thus, control subjects must be carefully selected to reflect these variables.

Finally, as we shall see in the next section, there is even difficulty in defining suicidal behavior. Thus, as Linehan (1978) points out, "methodological problems exist at almost every level" (p.231)

DEFINITIONS

In the past, it has been common for researchers to classify suicidal behavior as falling into one of four categories; completion, attempt, gesture or threat. The difficulty with such systems has been their reliance on the concept of intent (Kreitman et al., 1969). That is, such an approach requires a differentiation between those individuals who engage in self-injurious behavior(s) with the intent to die and those individuals who engage in topographically similar behaviors, but who do not intend to die. Thus, as Douglas (1967) points out, motivation or intention is central to the notions of suicide gesture and attempt. Unfortunately, as Linehan (1978) notes, there is much disagreement among researchers, clinicians, coroners and government officials/agencies as to what constitutes intent.

In response to the difficulties inherent in distinguishing between those who engage in suicide gestures and true suicides and suicide attempts, Kreitman and associates (1969) have suggested the term "parasuicide" be applied to all deliberate, self-injurious acts. This concept does not require motivational inferences and is intended to cover any "non-fatal act in which an individual

deliberately causes self-injury or ingests a substance in excess of any prescribed or generally recognized therapeutic dosage" (Kreitman, 1969; p.3). Parasuicide, then, is simply a behavioral analogue of suicide attempting, independent of motivational inferences.

The Task Force for the National Institute of Mental Health's Center for Studies of Suicide Prevention has adopted a similar approach (Beck et al., 1973; Pokorny, 1974). They have proposed a tripartite, multiaxial classification in which suicidal behavior is classified according to three categories (e.g. completed suicide, suicide attempt and suicidal ideas). Additionally, suicide attempts and ideation are rated for potential medical lethality of the contemplated or actual method and the individuals intent to die.

Thus, although these proposed classifications no longer attempt to distinguish between suicide attempts and suicidal gestures, there is still a stated interest in quantifying the individual's degree of intent to die. Several investigators (Kessel, 1966; Stengel, 1964) have noted that many persons who engage in behavior described as attempted suicide have little or no intention of dying. For example, Stengel (1964) has identified individuals who

have taken lethal dosages of medication but have done so in such a way as to maximize the chance of environmental intervention. Additionally, many so called suicide attempters deliberately ingest sublethal dosages (Kessel, 1966).

In response to these observed differences in intention to die, a number of investigators have developed measures which seek to quantify suicide intent. Thus, rather than attemping nominal classification and it's attendant difficulties, researchers have also begun to develop a variety of interval scale measures which can be employed to rank order subjects within a sample or to make comparisons between samples.

An example of this type of measurement instrument is the suicide intent assessment method developed by Freeman et al. (1974). In this system, each individuals' self-injurious behavior is rated on two five point rating scales. On the first scale, the behavior is rated by lethality from zero to five depending on the method employed. Criterion are provided for assigning the rating. On the second scale, the individual receives a rating from zero to five depending on the degree of rescuability. An individual who engages in the behavior in the presence of

others would receive the lowest score, whereas an indiviual who expends efforts to prevent rescue would receive the highest score. The combination of these two scores then yields the degree of intention to die for that individual's self-injurious act. Similar means for rating intent have been developed by other researchers for both parasuicides (Beck, Herman, & Shuyler, 1973) and suicide ideators (Beck et al., 1979).

In this paper, we will refer to individuals who engage in self-injurious behavior as parasuicides according to Kreitman's (1969) usage of the term. "Suicide ideator" will be used to refer to those persons who either threaten suicide or who admit to current thoughts of engaging in self-injurious behavior. In addition, the more general term "suicidal behavior" will be employed to denote a category of individuals which includes suicide ideators, parasuicides and suicides.

MODELS OF SUICIDE

Over the years, numerous models of suicidal behavior have been generated by both psychological and sociological researchers. While a detailed review of these models is beyond the scope of this paper, a brief overview may help

to place the model espoused here in clearer perspective. For the sake of organization, Linehan's (1978) classification of theoretical approaches to suicide will be employed.

SOCIOLOGICAL THEORIES

These theories tend to view suicide from the perspective of an individual's role within a social structure. Foremost among these, from a historical perspective is Durkheim's (1951) model of suicide in which suicidal behavior is said to result from an interaction between social groups and individuals. Societal structure was said to produce suicide if either disrupted (i.e. anomic suicide) as in the case of the Great Depression in this country, or if the structure yielded excessive regulation (i.e. fatalistic suicide), such as might be the case in the suicides of slaves. In addition, Durkheim discussed the importance of the individual's involvement in the social structure as playing a role in suicide, either through over-involvement (i.e. altruistic suicide) in which martyrdom or self-sacrifice occur, or through inadequate involvement (i.e. egoistic suicide) arising from poor integration of social groups. The latter form of suicide

was considered by Durkheim to be the primary factor in suicide within European cultures. Similar views have been put forth by others (Shneidman, 1976).

Although sociological theories have evolved over the years to include an increasing number of factors, such as social meaning, the stability and durability of social relationships, and social restraint (Henry & Short, 1954; Gibbs & Martin, 1964; Douglas, 1967) they have proven to be more useful in the prediction and explanation of suicide rates within and between cultures than they have been in either the prediction or treatment of suicidal behavior within individuals. Thus, interactional approaches focusing on such factors as social support, have gained more recent prominence. Braucht's (1979) research, to be discussed later in this paper, is an example of such an approach.

PSYCHODYNAMIC THEORIES

Psychodynamic theories are by far the most numerous in the literature on suicidal behavior. In general, these theories view suicide as the product of unconscious motivation, most often arising from aggressive urges directed against an introjected and ambivalently viewed

love object (e.g. anger turned inward). An example of this approach is Menninger's (1938) view that all suicides involve the wish to kill, the wish to be killed and the wish to die.

Research on the role of aggression in suicide has been mixed, however. For example, despite the fact that suicide is said to reflect anger turned inward, many suicides occur following homicide (West, 1966). Furthermore, analyses of suicide notes have not tended to reveal hostile motives (Farberow & Shneidman, 1957). Most troublesome, perhaps, for psychodynamic theories are the difficulties inherent in asessing unconscious motivations in an empirical manner.

BIOLOGICAL THEORIES

Biological theories of suicide have focused on either the role of genetic or biochemical factors in producing suicidal behavior. Genetic research, however, has shown that identical twin pairs do not tend to be concordant for suicide. In a follow-up study of identical twins in which one member of the pair had committed suicide, Kallman et al. (1949) found all surviving twins to be discordant as to suicide as much as forty-nine years later. Although it appears that biogenic amines (Zis & Goodwin, 1982) and

endocrine abnormalities (Sachar, 1982) play a role in affective disorders, the relationship between biochemical factors and suicidal behavior is as yet unclear.

COGNITIVE AND LEARNING THEORIES

Cognitive theories have focused on either suicide as an attempt at communication or the role of cognitive variables in predisposing individuals to suicidal behavior. In the former, parasuicide is viewed as an attempt by the individual to convey to his environment that something is fundamentally wrong with his/her life circumstances (Douglas, 1967; Farberow & Shneidman, 1961; Kreitman et al., 1970). Douglas' (1967) observation that parasuicide can convey specific meaning in many subcultures is in keeping with operant models in which parasuicide is viewed in terms of it's potential for eliciting help-giving behavior from the environment (Bostock & Williams, 1974). Other researchers have taken this approach one step further, asserting that suicidal behavior can be viewed as an attempt at problem-solving (Appelbaum, 1963; Basecu, 1965; Kovacs et al., 1975b; Maris, 1971; Stengel, 1960, 1964). As shall be discussed later in this paper, however,

there has been very little systematic investigation of this viewpoint.

In addition to the role of suicidal behavior as an operant, learning theorists have also discussed the importance of modeling in suicide (Diekstra, 1973). It is assumed that in order for parasuicide or suicide to be chosen as a potential problem-solving strategy, that behavior must be learned. As we shall discuss at a later point, there is evidence that modeling plays a role in the development of suicidal behavior.

A sudden shift in locus of control has also been hypothesized as a precipitating factor in suicidal behavior (Zubin, 1974), although the research on this variable has been contradictory to such a view (Luscomb, Clum, & Patsiokas 197?). Cognitive rigidity appears to hold more promise as an explanatory variable in suicide, and in the literature review later we will review the evidence for this factor.

Finally, Beck (1963) has advocated hopelessness as the most important predisposing variable in suicidal behavior. His theory holds that certain distortions in thinking result in the individual's coming to view his/her situation as both intolerable and unlikely to change. Thus, suicide

comes to be viewed as a potential solution. It should be noted that these cognitive distortions can lead the individual to view their situation as intolerable, despite objective evidence to the contrary. In this way, Beck's view point can be differentiated from other theorists who have discussed suicidal behavior as attempts to communicate distress or to solve personal problems. While hopelessness has proven to be closely allied with suicidal behavior (Beck et al., 1975;

Kovacs, et al., 1975; Minkoff et al., 1973; Motto, 1977; Schotte & Clum, 1982; Steele, 1977; Wetzel, 1976), there are no studies to date which evaluate the role of Beck's cognitive distortions in producing this set of negative expectations in suicidal subjects.

EXPERIMENTAL MODEL

The model of suicidal behavior presented in this paper and elsewhere (Schotte & Clum, 1982) combines a number of the variables discussed by cognitive and learning theorists as playing a role in suicidal behavior. Basically, this model focuses on the effects of modeling influences, negative life events, cognitive rigidity, problem-solving and hopelessness.

In the absence of data suggesting an innate basis for suicidal behavior, we are forced to assume that it is learned. That is, parasuicide or suicide as behaviors are learned as a result of either informational or vicarious learning. Within this culture, individuals are exposed to suicide through many channels. Suicides are commonly reported in the media, especially following the death of a public figure or the observation of a shift in suicide rates or patterns. Many of us are exposed more directly to suicidal models, such as family members, friends or co-workers. Indeed, it would be difficult if not impossible to escape exposure to suicide. A number of investigators (Diekstra, 1973; Linehan, 1978; Phillips, 1979) have discussed the importance of modeling for the emergence of suicidal behavior.

A second assumption of this model is that suicidal behavior emerges in response to prolonged periods of negative life stress. Several researchers (Cochrane & Robertson, 1975, Jacobson & Tribe, 1972; Paykel et al., 1975; Schotte & Clum, 1982) have investigated levels of life stress in both parasuicides and suicide ideators, suggesting that negative life events are higher in these persons than in comparison groups. Yet as Benner et al.

(1980) have noted, the consequences of stress cannot be understood solely through examination of the stressors alone. In order to better understand the relationships between stressful life events and psychopathology mediational variables must be identified.

The model presented here asserts that cognitive rigidity mediates the relationship between stress and suicidal behavior. It is hypothesized that deficits in the capacity for flexible thinking interfere with the individual's ability to engage in effective problem-solving, thereby rendering them especially vulnerable to the effects of life stress. When faced with problems, suicidal individuals are believed less likely to generate potential solutions and are, therefore, more likely to view self-destructive behavior as a viable alternative. While research has provided evidence for the notion that parasuicides are more rigid in their thinking than are their non-suicidal peers (Breed, 1963, 1972; Levenson, 1972; Neuringer, 1964; Patsiokas, Clum, & Luscomb, 1979), less attention has been paid to their actual problem-solving abilities or the nature of their deficits in this area (Schotte & Clum, 1982). Most importantly, it has not been shown that this rigidity

effects their ability to generate solutions for personal problems.

The fourth assumption of this model is that these deficits in divergent thinking and problem-solving skills produce increasing levels of hopelessness in the individual confronted with continuing levels of high life stress. That is, it is hypothesized that an inability to effectively cope with persistent negative life events results in the development of a belief that such a pattern cannot be changed through less drastic action. Thus, hopelessness is considered to be the immediate precursor to suicidal behavior.

In summary, the model presented here suggests that suicidal behavior arises when individuals who have been exposed to suicidal models are placed under high levels of life stress with which they are cognitively unprepared to cope. Hopelessness then arises, leading the individual to consider suicide or parasuicide as increasingly attractive strategies for resolving their problematic situation. As we shall see, there is some evidence for each of these propositions.

MODELING

Durkheim (1951) discussed several historical incidents which allude to the importance of modeling in suicidal behavior. In the 1700's fifteen hospital patients hung themselves from the same hook in a dark passageway. In the second case, a number of soldiers all shot themselves in the same sentry box in Boulogne. In both instances, removal of the particualr physical structure involved ended the series of death. Such "epidemics" still occur. Willard (1972) has reported a series of four suicides in a small country jail bordering an American Indian reservation, in which four youths hanged themselves from the same pipe over a twelve month period. The much publicized self-incineration of a Bhuddist monk in Viet Nam during the early 1960's resulted in a trend for selection of that method in the United States by political protestors over the next year.

Research on the effects of publicity on suicidal behavior has produced similar findings. In a series of studies Phillips (1974, 1977, 1978, 1979) has shown that the number of deaths by suicide, automobile and small aircraft accidents all increase in the period immediately following newspaper reports of suicide. These

relationships are most marked in the areas geographically closest to the incident and most exposed to the newspaper publicity (1974, 1979). Publicity of murder-suicides result in increases of multi-passenger automobile fatalities whereas publicized suicide results in more deaths of young men driving alone (Phillips, 1979). Similar results have been demonstrated for murder-suicide publicity and multifatality, non-commercial plane crashes. Suicide attempters also tend more often than non-attempters to be linked socially with significant others who have also attempted suicide (Kreitman et al., 1970). Other studies have found that the suicide rate is higher among family members of suicide completers (Moss & Hamilton, 1957) and that this finding may cut across generational lines (Pokorny, 1968). These findings lend a great deal of support to Phillips (1979) conclusion that suggestion, imitation and modeling can play an important role in the frequency of suicidal behavior.

LIFE STRESS

Since the development of easily administered and widely accepted stimulus measures of stress which operationalize stress in terms of recent life changes (such

as the Schedule of Recent Life Experience; Holmes & Rahe, 1967), interest in the relationship between environmental stress and subsequent physical and psychological disturbance has been on the upswing (Cochrane & Robertson, 1975). Correlations have been obtained between life change and a wide variety of physical illnesses, including sudden cardiac death (Rahe & Lind, 1971), myocardial infarction (Edwards, 1971; Theorell & Rahe, 1971), and seriousness of chronic illness (Wyler, Masuda & Holmes, 1971). Positive results have also been obtained in studies of the psychological correlates of life change, such as depression (Sarason, Johnson, & Siegel, 1978). It should not be surprising, then, that a relationship has also been observed between life stress and suicidal behavior (Braucht, 1979; Cochrane & Robertson, 1975; Jacobson & Tribe, 1972; Luscomb, Clum, & Patsiokas, 1980; Paykel, Prusoff, & Myers, 1975; Schotte & Clum, 1982).

The earliest demonstration of a relationship between life stress and suicidal behavior was obtained in an uncontrolled study conducted by Jacobson and Tribe (1972). These investigators observed that a wide variety of potentially stressful events (such as marital discord, financial difficulties, and employment problems) preceded

deliberate self-injurious behavior in the sample with which they were working. Unfortunately, the lack of a control group prevented these researchers from concluding that their subjects had experienced stressful life events in excess of other psychiatric and normal samples.

This shortcoming was dealt with by Paykel, Prusoff, and Myers (1975) who, in a well-controlled study employing both normal and depressive controls, collected data on a moderately sized group of parasuicides. Specifically, Paykel and his colleagues administered a structured interview to fifty-three randomly selected parasuicides to ascertain the frequency of sixty-one different life events during the six months prior to their parasuicide. The rate of occurrence of these events was then compared to their frequency in the normal and depressive groups. Analyses performed indicated that the parasuicides had reported four times as many unpleasant life events than had normals, and one and one-half times the number reported by the depressives prior to the onset of their depression. In addition, a marked peaking of events was observed in the month preceding their deliberate self-injurious behavior.

Several methodological problems, however, threaten the validity and generalizability of these findings. First,

the majority of the sample was female (37 of 53). Second, no attempt was made to control for or assess the role of age and social class variables in producing the results obtained. Thus, the demographic comparability of the three groups is in question. Third, and perhaps most serious, the data on the normal and depressive controls were collected three years after the experimental data were obtained.

Working in Scotland, Cochrane and Robertson (1975) designed a study to control for the potential confounds introduced by sex and social class variables. Subjects in this investigation were males equally distributed between young (under twenty-five) and older (over forty), manual (similar to blue collar) and non-manual (similar to white collar) workers. A fifty-three item life events checklist of their own construction (Cochrane & Robertson, 1973) was administered to 100 parasuicides divided into these categories and to an equal number of controls matched on the basis of age and occupational status. The results showed that the parasuicides had undergone far more negative life events in the year prior to their self-injurious behavior than had the matched controls. As in the Paykel et al. (1975) study, pleasant life events did

not significantly differ in frequency.

Schotte and Clum (1982), as part of a larger study of college student suicide ideators, administered the Life Experiences Survey (Sarason, Johnson & Siegel, 1978) to both college students who admitted to recent suicide ideation and to a control group of students who denied recent suicide ideation. Scores on this measure were found to be significantly correlated with level of depression, level of hopelessness and degree of suicide intent. In addition, as in previous research (Cochrane & Robertson, 1975; Jacobson & Tribe, 1972; Paykel, Prusoff & Myers, 1975) negative life events were the crucial factor, positively rated life events did not differ significantly between the two groups. Finally, life events which occurred in the previous six months differed significantly between ideators and non-ideators, whereas those in the past seven months to one year did not. This is similar to the peaking of events reported by Paykel et al. (1975).

In a more complex analysis of the relationship between negative life events and parasuicide, Braucht (1979) sought to extend the findings in this area by evaluating the interaction between life stress and social support. Braucht employed census tract data as a means of

operationalizing social support in terms of demographic similarity to members of one's community. Braucht hypothesized that parasuicides would: 1) tend to experience negative life stress in excess of the norm for their community; 2) experience stressors different from those experienced by other members of their community; and, 3) tend to be demographically dissimilar to community residents. It is assumed that these latter two factors would attenuate the stress reduction effects of social support.

In order to accomplish this, Braucht segmented the Denver, Colorado area into four neighborhood cluster dimensions on the basis of the census tract data; these were poor minority, elderly isolate, rootless renter and destitute male. On the basis of these dimensions a proximity cluster analysis yielded seven distinct neighborhoods.

Data collected on a large (N=659) sample of parasuicides were then analyzed by neighborhood. The results obtained showed that the parasuicides tended to differ from their immediate neighbors on at least two of the four neighborhood dimensions and also tend to experience different types and levels of life stress. That

is, they were both demographically dissimilar and prone to different sources of environmental stress. Finally, the levels of stress reported by Braucht are highly similar to those obtained by Paykel et al. (1975), lending further support to their findings.

Although membership in demographically similar communities appears to reduce the impact of environmentaL stress, little attention has been paid to the potential effects of social support in the area of suicidal behavior. This is unfortunate, because a number of investigations have suggested that social support may play an important role in suicidal behavior. For example, suicide rates are higher for immigrants than they are for natives of their new country or for individuals who remain in their old country (Coombs & Miller, 1975). In addition, the suicide rates for blacks and whites are inversely related to their proportions within a given population (Davis, 1979). The mechanism(s) by which social support reduces the impact of life stress, however, is not well understood. Further understanding of this relationship could yield heightened levels of prediction.

The only negative findings in this area came in a study by Luscomb et al. (1978) with male parasuicides in a

Veterans Administration Hospital sample. These investigators found that while a measure of life stress was discriminative for older parasuicides, scores on this scale were no higher in the younger parasuicides than in the control group. Thus, the results of this study are in marked contrast to those obtained in other research (Braucht, 1979; Cochrane & Robertson, 1975; Jacobson & Tribe, 1972; Paykel, Prusoff, & Myers, 1975; Schotte & Clum, 1982). The reasons for this discrepancy are not known.

Overall however, the first assertion of the model appears to have received a reasonable degree of empirical support. Parasuicides, and suicide ideators, report levels of life stress in excess of those reported by depressive and normal controls (Braucht, 1979; Cochrane & Robertson, 1975; Jacobson & Tribe, 1972; Paykel, Prusoff, & Myers, 1975; Schotte & Clum, 1982). In addition, these negative life events appear to peak in the several months preceding the onset of suicide ideation or parasuicide (Paykel, Prusoff, & Myers, 1975; Schotte & Clum, 1982). Finally, there is reason to believe that the stressors they experience may be different than those experienced by other members of their community and that parasuicides themselves

tend to be demographically dissimilar to their neighbors (Braucht, 1979). This latter finding suggests that they are less likely to benefit from the stress attenuating influences of social support.

The relationship between stressful life events and suicidal behavior is not one to one. Thus, although some investigators (Dohrenwend & Dohrenwend, 1979) have argued that our ability to predict responses to stress would increase with advances in the precision with which we measure stressful events, assessment of stress from a stimulus perspective has limited predictive utility. As Benner et al. (1980) have pointed out, "even in extreme circumstances the consequences of stress cannot be understood merely in terms of the stressful event" (p.22). In order to heighten our level of prediction and to increase our understanding of the role of stress in producing physical and psychological disturbances, it is necessary that we identify the processes/factors within the individual which mediate these relationships.

For this reason, research in the area of suicide needs not only to focus on the levels and types of environmental stress with which the suicidal individual must cope, but also to identify those processes or factors which attenuate

the individuals ability to effectively adapt to these sources of stress. As we shall see in the next section, cognitive rigidity holds promise as a potential mediating variable in the relationship between life stress and suicidal behavior.

COGNITIVE RIGIDITY

As noted previously, the idea that suicidal idividuals are more rigid and inflexible in their thinking than are non-suicidal persons, is a popular clinical observation (Binswanger, 1958; Cavan, 1928; Dublin & Bunzel, 1933; Levenson & Neuringer, 1974; Menninger, 1938; Muhl, 1927; Shneidman, 1957). It is assumed that this cognitive factor mediates the relationship between life stress and suicidal behavior by rendering the individual incapable of engaging in the flexible mode of thinking necessary to generate potential alternative solutions to the problems they face. In the absence of alternatives, the individual is more likely to experience feelings of hopelessness and to consider suicide as a potential solution.

Psychological research has shown that some individuals do indeed have difficulty overcoming set habits of responding (Cowen, Weiner, & Hess, 1953) and that this

rigidity can become enhanced under conditions of stress and anxiety (Appelzweig, 1954; Brown, 1953; Ross, Rupel, & Grant, 1953). For the purposes of this paper, however, it is necessary that we demonstrate a link between this individual difference and suicidal behavior.

In research employing the California F Scale (Adorno, Frenkel-Brunswick, Levenson, & Sanford, 1950) and the Rokeach Map Test (Rokeach, 1948) as indices of cogntive rigidity, Neuringer (1964) compared this variable across parasuicides, psychosomatic and normal controls. Parasuicides were indeed found to be more rigid as evidenced by higher scores on the F Scale and fewer shifts on the Map Test. Unfortunately, there is some question as to whether or not the F Scale in particular is a valid measure of cognitive rigidity. Although purported by it's developers (Adorno et al., 1950) to identify individuals who are disposed to thinking in terms of rigid categories, independent investigators (Appelzweig, 1954; Cowen & Thompson, 1951; French, 1955) have found the relationship between the F Scale and other measures of cognitive rigidity to be less than clear cut.

More recently, Levenson (1972) reasoned that if suicidal persons are less flexible in their thinking, then

this should be evidenced on several measures of creativity developed by Getzels and Jackson (1962). The first of these, the Unusual Uses Test, consists of a list of five common objects (a brick, pencil, paper clip, toothpick and a newspaper) for which the subjects are provided the most common usage and requested to generate as many other possible uses as they can. The Word Association Test, on the other hand, is composed of twenty-five words, each of which has several different connotations. Respondents are asked to list as many of the meanings for each word as they can. Individuals who are deficient in the capacity to engage in divergent thinking should perform poorly on these measures as they require the generation of new and different uses for objects as well as words.

Neuringer administered these tasks, the Unusual Uses Test and the Word Association Test, to parasuicides, psychiatric and hospitalized normal controls. On both of these tests, the parasuicides performed at a level significantly below that of either the psychiatric or normal controls. If these tasks, as Getzels and Jackson assert, measure an individual's ability to use the environment in a broad and flexible manner, then it appears that cognitive rigidity may discriminate parasuicides from

other populations.

At the same time that this research was conducted, Breed (1972) published a model of suicide based on his previous research using interview rating scales. While admitting that the concept of cognitive rigidity was in need of clarification, Breed's findings led him to include it as a primary factor in his model. In accord with the paradigm espoused here, Breed noted that his subjects "seemed unable to bend or change...they were constricted, without the flexibility to try new paths" (1972, p.7).

In order to increase the reliabilty with which cognitive rigidity can be assessed, several investigators (Wilson, Christenson, Merrifield, & Guilford, 1975) have developed a revised version of the Unusual Uses Test, the Alternate Uses Test. Using a relatively unaltered format, Wilson et al. have provided increased standardization through the inclusion of a scoring manual. Low and high scores on this measure reflect cognitive rigidity and flexibility, respectively.

Operationally defining rigidity in terms of scores on the Alternate Uses Test, Patsiokas et al. (1979) investigated the discriminative utility of this and other

cognitive measures (e.g. field dependence and impulsivity) in differentiating parasuicides from non-suicidal psychiatric patients in a Veterans Administation Hospital sample. A stepwise discriminant analysis found cognitive rigidity to be the best, single distinguishing feature of the parasuicides.

In a test of this model within a sample of college student suicide ideators, Schotte and Clum (1982), did not obtain a significant difference between the ideators and a non-ideating control group on the Alternate Uses Test.

Although the exact reasons for this negative finding cannot be specified, other research (Gotlib & Asarnow, 1979) has shown that the relationship between impersonal problem-solving tasks and other psychological variables, such as learned helplessness, is not always robust. An alternative possibility is that the low level of suicide intent in the sample employed was not sufficient to generate group differences. Finally, it could be that this is a variable with which generalization from one category of suicidal behavior (suicide ideators) to another (parasuicides) is not valid.

Nevertheless, the results of several research studies (Breed, 1963, 1972; Levenson, 1972; Neuringer, 1964;

Patsiokas, Clum, & Luscomb, 1979) do suggest a relationship between cognitive rigidity and parasuicide. Whether this relationship holds for suicide ideators as well is in question.

PROBLEM-SOLVING

A number of investigators (Appelbaum, 1963; Grollman, 1971; Levenson & Neuringer, 1971; Neuringer, 1961; Schotte, & Clum, 1982; Stengel & Cook, 1958) have discussed suicide and parasuicide as an attempt at problem-solving. As Maris (1971) has suggested, parasuicide can be conceptualized as the persons attempt to cope with a difficult life situation.

Very little attention, however, has been devoted to evaluating the problem-solving skills of suicidal individuals. In fact, to date, there have only been two published investigations in this area.

In the first, Levenson and Neuringer (1971) employed the WAIS Arithmetic subtest and the Rokeach Map Test as measures of problem-solving in adolescent parasuicides. Although they found that the parasuicides performed less well on these measures than did control subjects, the choice of impersonal problem-solving tasks such as these

leads to questions of generalizablility. As noted previously, the relationship between such measures and psychological disturbance is not clear (Gotlib & Asarnow, 1979).

In the second study, Schotte and Clum (1982) administered an interpersonal problem-solving task, the Means-End Problem-Solving Procedure (Platt, Spivack & Bloom, 1971), to college student suicide ideators. This measure requires that the respondents address themselves to hypothetical real-life problem situations, thereby assessing their ability to engage in effective problem-solving behavior. The results of this study showed that those subjects who performed poorly on this measure and who reported a high number of recent negative life events had the highest levels of hopelessness and suicide intent.

Thus, there is some evidence that suicidal persons may have deficits in problem-solving skills and that these deficits may be related to levels of hopelessness and suicidal intent in suicide ideators. Yet this study does not address the complexity of effective problem-solving as conveyed by such ivestigators as Goldfried and D'Zurilla (1971). Rather, the Means-End Problem-Solving Procedure

allows for assessment of interpersonal problem-solving skills after the fact. That is, the measure evaluates the respondent's implemented solution, it does not assess the processes whereby that solution is generated, evaluated or implemented.

Goldfried and D'Zurrilla (1971), in their discussion of the application of problem-solving to behavior modification identify a number of stages in the problem-solving process. Specifically, these steps include: 1) a general set or orientation towards problems in which the individual believes that problems are a normal part of life, are solvable and are not responded to automatically or impulsively; 2) problem identification, definition and formulation; 3) generation of potential alternative solutions; 4) evaluation of alternatives and decision making; and, 5) implementation and verification.

Ineffective problem-solving may arise from skills deficits at any one or more of these stages. For example, the individual may have unrealistic expectations concerning problematic situations. In the case of suicidal subjects, there is ample evidence for negative expectations of their ability to solve problems. These individuals also tend to adopt a "why-do-these-things-always-happen-to-me"

attitude, further distorting their view of problematic situations. In addition, impulsivity or automatic responding also tends to be characteristic of this population (Jacobizner, 1960; Kessel, 1967; Lourie, 1966). All of these factors suggest that the suicidal individual's general cognitive set towards problems is not concordant with effective problem-solving.

Much less information is available concerning the remaining steps in the problem-solving process among suicidal individuals. Although research discussed previously suggests that these individuals are excessively rigid in their approach to problems, the implications of this finding for interpersonal problem-solving remain untested. Nor has research been directed toward assessing their problem identification, decision making or implementation skills. Thus, although previous investigations suggest poor problem-solving, the specific nature of problem-solving deficits in these individuals have not yet been identified.

In the present study, attempts will be made both to replicate the findings of Schotte and Clum (1982) and to provide a preliminary analysis of the problem-solving process in a sample of hospitalized psychiatric patients

judged at risk for suicidal behavior. Therefore, in addition to a global assessment of problem-solving skill (e.g. the Means-End Problem-Solving Procedure), a more specific evaluation aimed at addressing the problem-solving process will be conducted.

HOPELESSNESS

Clinical observation of parasuicides has led a number of investigators to agree with the popular notion that such persons engage in deliberate self-injurious behavior out of a subjective sense of "being at the end of one's rope."

Thus, following an intensive study of fifty parasuicides, Beck (1963) concluded that suicide ideation in these individuals appeared to be directly related to their perceiving current life situations as being unlikely to change significantly in the future. Indeed, these persons tended to state that they had come to view suicide as the only viable solution to their hopeless situations.

The vast majority of the work on this construct has been conducted by Beck and his colleagues at the University of Pennsylvania. In their earliest research on the relationship between hopelessness and suicide, Minkoff, Bergman, Beck, and Beck (1973) administered the Generalized

Expectancies Scale (Vatz, Winig, & Beck, 1969), the Beck Depression Inventory (Beck et al., 1961), and the Suicide Intent Scale (Beck et al., 1973) to sixty-eight hospitalized parasuicides. Using the Generalized Expectancies Scale as a crude measure of hopelessness, Minkoff et al. found that negative expectations toward the future were more highly correlated with suicide intent than was the subject's level of depression per se.

At approximately the same point in time, Beck and Lester (1973) factor analyzed the Beck Depression Inventory scores of a sample of hospitalized depressives. The results of this analysis revealed five factors, although only the first is of interest to us here. On this factor, two variables, labelled suicidal wishes and pessimism, had loadings greater than .50. On the basis of this finding and the findings of Minkoff et al. (1973) it appeared that pessimistic attitudes might play a role in the development of suicidal ideations and behavior.

Combined with similar findings from other factor analytic studies (Beck & Ohanessian, 1974; Pichot & Lemeriere, 1964), the identification of a factor in depression inventory responses which reflects hopelessness and suicidal ideation led Beck and his colleagues to

develop a more specific measure of hopelessness; the Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974).

Beck et al., in keeping with Stotland's (1969) conception of hopelessness, operationalized the construct in terms of a set of negative expectations toward the future. Data obtained with a number of psychiatric populations indicated that this new measure had satisfactory internal consistency, temporal stability and construct validity.

In one of the first studies conducted with this new measure, Wetzel (1976) administered the Hopelessness Scale, Zung's (1964) Self-Rating Depression Scale and a self-report measure of suicide risk to three groups of subjects; forty-eight parasuicides, fifty-six suicide ideators and fifty non-ideating controls. In addition, each subject was interviewed by Wetzel within forty-eight hours of hospitalization and rated on Beck et al.'s (1973) Suicide Intent Scale. Finally, a packet containing a second copy of the experimental measures was given to each subject to be filled out and returned one month after admission.

The results of this study indicated that depression and hopelessness were higher in the parasuicides and suicide ideators than in the non-ideating control subjects. Levels of depression and hopelessness were also able to discriminate between those subjects rated high and low on suicide intent. Most importantly, hopelessness was more highly correlated with suicide intent than was depression. When the variance attributable to depression was partialled out, hopelessness still correlated significantly with suicide intent. In fact, when the level of hopelessness was statistically controlled for, there was no significant correlation between depression and suicide intent in the suicide ideators.

Working concurrently with Wetzel, Beck, Kovacs, and Weissman (1975) conducted a similar study in a large sample (N=384) of parasuicides. Within forty-eight hours of their admission, each subject was interviewed first by an experienced clinician and then by a research assistant. The clinician rated each subject on the Suicide Intent Scale and on informal, eight-point rating scales of depression and hopelessness. The research assistant then administered the Hopelessness Scale and the Beck Depression Inventory. Clinical ratings of depression and hopelessness

were well-correlated with the self-report scales. In accord with the research previously cited, hopelessness was a better predictor of suicide intent than was depression. It also appeared, once again, that hopelessness served to mediate the depression-parasuicide relationship.

In a further systematic replication of Minkoff et al. (1973), Kovacs, Beck, and Weissman (1975) found that hopelessness was a significantly better predictor of the level of suicide intent in a group of ninety suicide ideators than was depression. Furthermore, Hopelessness Scale scores were a much better indicator of the extent to which the subjects viewed their current life situations as intolerable than was the level of depression.

Schotte and Clum (1982) found scores on the Hopelessness Scale to be the single best predictor of the level of suicide intent in college student suicide ideators, accounting for forty-four percent of the variance in scores on Beck et al.'s (1979) Scale for Suicide Ideators. Once again, hopelessness was a better predictor than the level of depression.

Other research has shown that suicide risk and ideation increase with increasing levels of hopelessness (Motto, 1977) and that hoplessness is a salient feature in

Black parasuicides as well as Whites (Steele, 1977). Hopelessness, then, has received perhaps the strongest empirical support of any of the variables in this model of suicidal behavior. It appears that negative expectations concerning the ability to solve one's problems play an important role in both suicide ideation and parasuicide. From this perspective, suicide can be seen as a means of coping with what the individual perceives to be an intolerable situation for which there is little chance of improvement.

SUMMARY OF THE MODEL/EXPERIMENTAL HYPOTHESES

Both popular clinical folklore (Binswanger, 1958; Cavan, 1928; Dublin & Bunzel, 1933; Menninger, 1938; Muhl, 1927; Shneidman, 1957) and research findings (Breed, 1972; Levenson, 1972; Neuringer, 1964; Patsiokas, Clum, & Luscomb, 1979) suggest a relationship between cognitive rigidity and parasuicide. It may well be that the relative deficit in the ability of parasuicides to engage in divergent thinking serves to render such individuals incapable of effectively coping with the high levels of environmental stress observed in this population by a number of investigators (Braucht, 1979; Cochrane &

Robertson, 1975; Jacobson & Tribe, 1972; Luscomb, Clum, & Patsiokas, 1978; Paykel, Prusoff, & Myers, 1975; Schotte & Clum, 1982).

Should this be the case, the negative expectations toward the future held by these individuals are understandable. Without the capacity to generate alternative solutions to the problems facing them, it is not surprising that feelings of hopelessness begin to develop.

Yet the clear implication of this model, that suicidal individuals have problem-solving skills deficits, has received very little attention. It is not clear how the deficit in problem solving skills identified by Levenson and Neuringer (1971) relate to interpersonal problem-solving in these individuals. As Gotlib and Asarnow (1979) have pointed out, the relationship between impersonal and interpersonal problem-solving skills is complex.

Previous research by this author (Schotte & Clum, 1982) revealed increased levels of suicide intent among college student suicide ideators who were both poor problem-solvers and who reported higher levels of life stress. Although offering tentative support for this model

in a sample of suicide ideators, no attempt was made in this study to identify the specific nature of problem-solving deficits in these subjects. Thus, we do not know if these subjects had more difficulty in generating alternative solutions to their problems, as the model would predict, or if their level of hopelessness interfered with their implementation.

The present study seeks to test this model within a sample of hospitalized psychiatric patients who have been placed on "suicide precautions/observation" by hospital staff. Levels of life stress, depression, hopelessness and suicide intent will be evaluated as will the subject's ability to engage in flexible thinking and effective interpersonal problem-solving. Unlike previous research, an attempt will be made to identify specific problem-solving deficits within this sample which might be employed to develop more effective treatment strategies.

Thus, it is hypothesized that subjects placed on suicidal observation status will, in comparison to non-suicidal control subjects: 1) report being socially connected to more suicide attempters and/or completers; 2) report higher levels of negative life stress on the Life Experiences Survey (Sarason et al., 1978); 3) score in the

cognitively rigid direction on the Alternate Uses Test (Wilson et al., 1960); 4) be able to generate fewer potential solutions to their own interpersonal problems; 5) provide fewer relevant means for solving problems on the Means-End Problem-Solving Procedure (Platt et al., 1971) and on a modified version of this test of the authors own construction; and, 6) score higher on Beck et al.'s (1974) Hopelessness Scale.

METHOD

SUBJECTS:

A total of 100 hospitalized psychiatric patients were recruited for participation in this research project. Data was collected at two hospitals, a Veterans Administration Hospital in Southwestern Virginia and a State Hospital in Southeastern Pennsylvania. Of these 100 subjects, 72 were male and 28 were female. Subjects ages ranged from 20 to 48, with a mean age of 29.9. The majority of the subjects, 85%, were diagnosed by hospital staff as having a Schizophrenic disorder, with the next most frequent diagnosis (10%) being Major Depressive Disorder. A summary of demographic information for the two groups is presented in Table 1. For the purposes of this study, suicidality was operationally defined as assignment by hospital staff to "suicidal precautions." This assignment was made by ward treatment team members on the basis of self-injurious behavior, attempts at self-injurious behavior, suicide threats or expressed suicide ideation in combination with perceived hopelessness. In addition, all subjects in the experimental group admitted to current suicide ideation to

the investigator. Fifty subjects met these criteria for inclusion in the study. Experimental subjects were tested on the experimental measures within seventy-two hours of being assigned to suicide precautions. Non-suicide ideating control subjects were matched as closely as possible for length of hospitalization, number of psychiatric hospitalizations, hospital, age, sex, race and psychiatric diagnosis. Three subjects were excluded from the study as a result of their inability to complete the experimental measures and one subject declined to participate.

PROCEDURE:

Subjects were provided with a Certificate of Informed Consent which detailed the nature and purpose of the research project. Following an explanation of this form and response to any questions which the subjects posed, the experimental measures were administered.

First, a short interview was conducted in order to obtain information on the subjects demographic background (e.g. age, sex, race, length of hospitalization, number of previous hospitalizations, employment and marital status), number of known attempted suicides and number of known

completed suicides. The investigator then questioned each subject concerning the presence of current suicide ideation for the purpose of completing Beck et al.'s (1979) Scale for Suicide Ideators. Following completion of this measure, the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978) was presented. Subjects then went on to complete the Alternate Uses Test (Wilson et al., 1960), the Zung Self-Rating Depression Scale (Zung, 1965) and the Hopelessness Scale (Beck et al., 1974). The Means-End Problem-Solving Procedure (Platt et al., 1971) and a modified version of the Means-End Problem-Solving Procedure of the investigator's own construction were then orally administered to each subject.

Following completion of the experimental measures all subjects were debriefed by the investigator. The total time needed for each subject to complete the experimental procedure ranged from one to two hours.

MEASURES

Scale for Suicide Ideators (SSI): This nineteen-item, interviewer-rated measure was developed by Beck, Kovacs, and Weissman (1979) as a means for assessing and quantifying the degree of suicide intent in individuals

who admit to the presence of current suicide ideations. Items cover the frequency and duration of thoughts of suicide, strength of wishes to live and die, current desire for active or passive suicide attempts, deterrents to attempting suicide, the presence of a suicide plan, preperation for a suicide attempt and the degree of disclosiveness of the subject during the interview. In addition, two items concerning the presence of prior suicide attempts and the intent to die associated with the last attempt are presented, although they are not included in the total score. Each item is rated by the interviewer on a scale of 0 to 2, yielding a total possible score range of 0 (no suicide intent) to 38 (maximum suicide intent). In a validation study with ninety hospitalized suicide ideators, Beck et al. (1979) demonstrated good interrater reliability (r=.83) and internal consistency (KR-20=.89) with this measure. This scale also appears to be sensitive to changes in suicide intent over time and total scores on this scale are well-correlated with levels of hopelessness (Wetzel, 1976). A factor analysis of the responses given by suicide ideators has yielded the following three meaningful factors; active suicidal desire, passive suicide

desire and specific plans for suicide. A copy of this scale is included in appendix A.

Life Experiences Survey (LES): The LES (Sarason, Johnson, & Siegel, 1978) is a sixty-item stimulus measure of stress which operationalizes life stress in terms of recent life changes or events. Respondents are provided with a list of fifty-seven life events (ten of which are specific to college students) and three blank spaces in which the subject may note events which he/she has experienced but which are not included in the list presented. The respondent is requested to indicate whether or not they have experienced each event and when that event occurred (e.g. in the past zero to six months or seven months to one year).

Additionally, they are instructed to indicate the impact each event had on them on a seven-point, anchored scale ranging from -3 ("extremely negative") to +3 ("extremely positive"). Summary scores can be computed for positive, negative and total life change for the previous six months and seven months to one year. The developers of this scale report acceptable temporal stability of respondent ratings of positive (r=.53), negative (r=.88) and total scores (r=.64) over a five to six week

test-retest period. A number of extra-test correlates, including level of depression and degree of psychological adjustment, have been reported for the negative life events scores of the 354 subjects on whom the scale was validated. A copy of this measure is included in appendix B.

Alternate Uses Test (AT): Adapted from Getzel and Jackson's (1962) measure of creativity, the Unusual Uses Test, this six-item test is intended to assess the respondent's degree of cognitive flexibility or rigidity. Subjects are provided with a list of six common objects (such as a brick, a pencil, a paper clip, a tire, a pair of eyeglasses and a button) and the most common use for each item. The subject is then instructed to generate and list as many as six different uses for each of these objects. The test is divided into two sections, each of which has three items. Subjects are timed, with four minutes allotted for each of the two sections. Wilson et al. (1975) have provided a standardized scoring manual for the AT. Possible scores on this measure may range from 0 to 36, indicating cognitive rigidity and flexibility, respectively. A copy of this measure is included in Appendix C.

Self-Rating Depression Scale (SDS): This twenty-item self-report inventory developed by Zung (1965) incorperates the affective, cognitive and physiological symptoms typical of depression. Each item is presented in four-choice, anchored format ranging from 1 ("a little of the time") to 4 ("most of the time"). One half of the items on this inventory are reverse-scored. An index of the total SDS score can be computed for each respondent by dividing that persons total score by the maximum possible total score of eighty. Thus, SDS index scores may range from 25 to 100. Zung (1965) has reported satisfactory levels of discriminant and empirical validity, as well as demonstrating that SDS index scores are sensitive to changes in the level of depression resulting from treatment or the passage of time. A copy of this measure is included in Appendix D.

Hopelessness Scale (HS): This measure was developed as a method for assessing the degree to which an individual's cognitive schemas are dominated by negative expectations toward the future. As such, it is thought by it's developers (Beck, Weissman, Lester, & Trexler, 1974) to reflect the degree to which the respondent views his/her problems to be unsolvable. The HS is a twenty-item self

inventory, presented in true-false format. One-half of the items are reverse scored. Total scores may range from 0 to twenty, with higher scores indicating hopelessness. This scale has been found to correlate well with interviewer ratings of hopelessness (Wetzel et al., 1975) and suicide intent in suicide ideators (Kovacs et al., 1975; Schotte & Clum, 1982) and in parasuicides (Beck et al., 1975; Minkoff et al., 1973). The HS also appears to be sensitive to changes in self-rated suicide risk over time (Wetzel, 1976). A copy of this measure is included in Appendix E.

Means-End Problem-Solving Procedure (MEPS): Developed by Platt, Spivack, and Bloom (1971), this interpersonal problem-solving measure presents the respondent with ten situations for which a beginning (stated need) and ending (desired outcome) are provided. The subject is then requested to write or tell a story in which the protagonist goes about acheiving the desired outcome. Stories can be scored for a number of factors including relevant means, enumerations of means, obstacles, enumerations of obstacles, irrelevant means, no means and the presence or absence of explicit time in the story. Some investigators (Gotlib & Asarnow, 1979; Platt & Spivack, 1975; Schotte & Clum, 1982) have focused on the

relevancy ratio (e.g. the ratio of relevant to irrelevant and no means) as a reflection of the overall degree of problem-solving skills. Scores on this measure are not highly correlated with general intelligence, as evidenced by the lack of significant correlation with WAIS Vocabulary subtest scores (Gotlib & Asarnow, 1979). Platt et al. (1971) provide a scoring manual with normative data. The MEPS can be reliably scored, as indicated by the high degree of interrater reliability obtained by both the developers (r=.98) and other investigators (r=.94; Schotte & Clum, 1982). Test-retest reliability is satisfactory for five weeks (r=.64) and eight months (r=.43) and the MEPS appears to have good internal consistency (KR-20=.82). The MEPS can be administered either orally or in written form. As in previous research (Gotlib & Asarnow, 1979), only five of the MEPS stories were administered in this study as a means of reducing the overall testing time required. A copy of this measure is included in Appendix F.

Modified Means-End Problem-Solving Procedure (Modified MEPS): The MEPS, although a satisfactory measure of general problem-solving skills, does not provide a method for assessing the stage at which problem-solving deficits occur. Because this study is concerned both with

evaluating the interpersonal problem-solving skills of suicidal psychiatric patients and with attempting to identify the specific nature of problem-solving deficits in this sample, a modified version of the MEPS of the investigators own construction was administered to each subject. This measure was designed to assess the following five specific steps in the problem-solving process: 1) identifying problems when they arise; 2) generating potential alternative solutions to problems identified; 3) evaluating the pros and cons of each alternative solution; 4) selecting the solution with the highest pro to con ratio (e.g. the minimax principle); and, 5) implementing and evaluating the selected alternative solution. According to this model, deficits in problem-solving may arise at one or more of these steps in the process. This scale, the Modified MEPS, has seven steps. First, subjects are requested to list as many as ten problems which they believe helped lead to their current hospitalization (e.g. problem identification). This provides an indication of their ability to identify life problems, with the number of problems identified reflecting their skills in this stage of problem-solving. The first interpersonal problem provided by the subject is then designated the target

problem and the subject is asked to list as many as six possible solutions to this problem (e.g. generating alternative solutions). Then, subjects are asked to provide a subjective probability of success for each alternative on a zero ("no chance of success") to ten ("definitely would succeed") scale. This rating should provide an indication of the subjects degree of hopelessness. Next, the respondent is instructed to list up to six pros and cons for each alternative and to rate them on a seven-point, anchored scale ranging from -3 ("extremely negative") to +3 ("extremely positive"). These pro-con ratings should also reflect the subject's level of hopelessness. Finally, the target problem is placed in MEPS format (e.g. stated need and desired outcome) and the subject is requested to tell a story in which the protagonist goes about solving the problem. This story is scored for the number of previously generated alternatives which the subject employs in attempting to solve the presented problem as well as the standard MEPS scoring indices. Due to it's complexity, this measure was orally administered to the subjects. Scores for relevant means, enumeration of means, obstacles and irrelevant means on this scale are significantly correlated with their MEPS

counterparts. A copy of this measure is included in Appendix G.

RESULTS

The results of this study were analyzed in a two-step process utilyzing the Mutlivariate Analysis of Variance (MANOVA) and stepwise, multiple regression procedures of the Statistical Analysis System (SAS, 1982). The multivariate analysis of variance was performed to test the experimental hypotheses and to evaluate the efficacy of the matching criteria for the experimental and control groups. Stepwise multiple regression analyses were then conducted for both group membership (e.g. suicidal vs. non-suicidal) and level of suicide intent as assessed by the Scale for Suicide Ideators. These latter analyses were conducted in order to ascertain the relative contribution of each of the experimental variables to both suicidality and suicide intent.

A significant overall effect for group membership (e.g. suicide ideators, non-suicide ideators) was obtained with MANOVA [Wilks' criteria, $F(23,76)=4.72$, $p<.001$]. A summary of this analysis is presented in Table 1.

No significant between group differences were obtained for any of the variables for which the experimental and

control groups were matched (e.g. sex, age, race, length of hospitalization, number of previous hospitalizations and psychiatric diagnosis). Perhaps most importantly, the two groups did not differ in their level of depression as assessed by the Zung Self-Rating Depression Scale (Zung, 1965).

In an attempt to assess the impact of modeling effects on suicide ideation, the number of suicide attempters and completers known to each subject was compared. The suicide ideators did not significantly differ from the non-ideating control subjects on either of these variables.The MANOVA procedure did, however, reveal significant group effects for eight of the dependent variables.

Scores on the Life Experiences Survey (Sarason, Johnson & Siegel, 1978) for the two groups significantly differed for the total negative life events in the year preceding their current psychiatric hospitalization [$F(1,99)=29.12$, $p<.0001$]. Suicide ideators reported a level of negative life stress 62% higher than that perceived by the non-ideating control subjects. A summary of this analysis is presented in Table 2.

The suicide ideators obtained significantly lower scores on the Alternate Uses Test (Wilson et al., 1975)

than control group subjects [$F(1,99)=10.26$, $p<.001$]. Overall, the non-ideating controls were able to generate an average of 60% more alternate uses for the objects provided on this test. Thus, the hypothesis that suicide ideators would demonstrate less flexibility of thinking on this measure was confirmed (see Table 3).

A relative deficit in problem-solving skills, as indicated by poorer performance on the Means-End Problem-Solving Procedure, was observed in the suicide ideators (see Table 4). As a result of their inability to provide as many relevant means as the non-ideators [$F(1,99)=7.28$, $p<.01$], relevancy ratios were lower for the ideators. The non-ideators provided 74% more relevant means than the experimental group subjects on this measure. On the other MEPS variables scored (e.g. enumeration of means, obstacles, enumeration of obstacles, irrelevant means and no means) the ideators did not differ significantly from the control group subjects.

On the Modified MEPS, several differences were observed between the two groups. The suicide ideators, when presented with an interpersonal problem from their own lives, were not able to generate as many potential alternative solutions as were the non-ideating controls

[F(1,99)=12.88, p<.001]. The non-ideators were able to generate an average of 60% more potential solutions for their problems than the suicide ideators. The results of this analysis are depicted in Table 5.

Once generated, the suicidal subjects did not view their alternative solutions as being any less likely to be effective in solving the problems presented nor did they expect that fewer positive benefits would accrue from their attempts. These subjects did, however, list a greater number of cons for each alternative than did the non-suicidal subjects [F(1,80)=33.34, p<.05]..

In addition, the suicidal subjects were also less likely to employ the alternatives they generated when solving the target problem [F(1,80)=38.76, p<.0001]. Thus, when asked to tell a story in which the subject solves a problem from their own life, these individuals are less likely to include the potential solutions within their repertoires. A summary of this analysis is presented in Table 6.

Perhaps as a result of their ability to generate a greater number of potential solutions, their tendency to anticipate a greater number of negative consequences and the lower rate at which they employ the alternatives they

have generated, the suicidal subjects also had fewer relevant means in their stories than did the experimental subjects [$F(1,99)=8.02$, $p<.01$]. In addition, the suicide ideators tended to include a greater number of irrelevant means in attempting to solve their problems than did the non-ideating controls [$F(1,99)=9.06$, $p<.01$]. These results are summarized in Tables 7 and 8.

Finally, the suicide ideators reported a 56% higher level of hopelessness than the non-ideators (see Table 9). This difference in group means for Hopelessness Scale Scores was statistically significant [$F(1,99)=15.94$, $p<.0001$].

In summary, the MANOVA revealed group differences between ideators and non-ideators on a number of the dependent measures. Suicide ideators were found to report higher levels of negative life stress prior to their hospitalization. They were also more cognitively rigid than their non-ideating peers on an impersonal measure of problem-solving skills, and this rigidity was also reflected in a relative deficit in their ability to generate potential solutions to their own interpersonal problems. These subjects were also more likely to identify cons associated with the solutions they generated and less

often employed these solutions in problem-solving attempts. They tended to employ fewer relevant means in attempting to solve problems on both the MEPS and the Modified MEPS and when it came to their own interpersonal problems, they were more likely to implement means which were irrelevant to the problem at hand. Finally, although no more depressed, the ideators were significantly more hopeless than their non-ideating peers.

In the second stage of data analysis, stepwise, multiple regression analyses were conducted in order to obtain the best statistical models for predicting both group membership (e.g. suicidal vs. non-suicidal) and level of suicide intent as measured by Beck et al.'s (1979) Scale for Suicide Ideators. These analyses were performed for both the entire sample (N = 100), including subjects with missing data, and for a smaller sub-sample (N = 81) which excluded these subjects. This was neccessary as those subjects who were not able to present alternatives on the Modified Means-End Problem-Solving Procedure received missing data values on subsequent measures of estimates of subjective probability of success, pro-con ratings and number of alternatives employed.

In a stepwise, multiple regression analyses of the entire sample which emplyed level of suicide intent as the criterion variable, a three variable model including Hopelessness Scale scores, total negative life stress reported on the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978) and the number of potential alternative solutions generated on the Modified MEPS was able to account for nearly 52% of the variance.

The same analysis performed on a smaller sub-sample which excluded those subjects with missing data on Modified MEPS scores, yielded a significant three variable model in which the number of alternatives employed on the Modified MEPS, Hopelessness Scale scores and mean Con rating on the Modified MEPS accounted for 56.5% of the variance in suicide intent. A summary of the regression analyses with suicide intent as the criterion is presented in Tables 11 and 12.

A stepwise regression analysis of the entire sample employing group membership (e.g. suicidal or non-suicidal) as the criterion, revealed a significant three variable model including negative life stress on the LES, number of alternatives generated on the Modified MEPS and Hoplessness Scale scores. This model accounted for 41% of the

variance (see Table 13).

When this analysis was performed on the smaller sub-sample, the best model obtained was a significant three variable model including the number of alternatives employed on the Modified Meps, negative life events scores on the LES and Hopelessness scale scores. This three variable model accounted for 54% of the variance. A summary of regression analyses employing group membership as the criterion is presented in Table 14.

Although the results of the regression analyses conducted vary depending on the criterion variable employed (e.g. suicidal vs. non-suicidal or level of suicide intent) and sample size, they do suggest the importance of negative life stress, problem-solving deficits and hopelessness in suicidal risk. In addition, of the variables on which the suicidal subjects differed from the non-suicidal subjects, negative life stress, hopelessness and interpersonal problem-solving skills appear to be more important than impersonal problem-solving skills or more global measures (e.g. number of relevant or irrelevant means) in accounting for these differences.

DISCUSSION

Discussions of suicide in the clinical literature (Binswanger, 1958; Cavan, 1928; Dublin & Bunzel, 1933; Menninger, 1938; Muhl, 1928; Shneidman, 1957) make frequent reference to the seemingly rigid fashion in which suicidal individuals view their world. Overall, these investigators appear to be in fair agreement that suicidal behavior arises when individuals with restricted capacity to engage in divergent thinking are placed under high levels of environmental stress.

Indeed, a number of empirical investigations (Levenson, 1972; Neuringer, 1964; Patsiokas, Clum & Luscomb, 1979) have found that parasuicides are more cognitively rigid on a variety of measures than are their non-suicidal peers. Motto (1977) asserts that this finding reflects the suicidal individual's inability to adapt to life change which, as Levenson (1972) points out, is likely to result in that person becoming increasingly helpless or hopeless. Thus, this model asserts that when individuals who are cognitively rigid are placed under conditions of high stress they are likely to become helpless or hopeless

and, as a consequence of this, to engage in suicidal behavior.

The presence of high levels of life stress, or life change, in the lives of both suicide ideators (Schotte & Clum, 1982) and parasuicides (Braucht, 1979; Cochrane & Robertson, 1975; Jacobson & Tribe, 1972; Luscomb, Clum, & Patsiokas, 1979; Paykel, Prusoff, & Myers, 1975) has been well-documented. Prolonged periods of life stress or, in particular, negative life events (such as losses, financial pressures and interpersonal conflicts) appear to precede both suicidal ideation and parasuicide. This study further supports these findings. Suicidal individuals reported a 62% higher level of negative life events in the year preceding their hospitalization than a matched control group. This is particularly interesting in that the difference in the levels of negative life stress reported is highly similar to the differences observed in previous research contrasting parasuicides to non-suicidal depressives (Paykel, Prusoff, & Myers, 1975). As in research by other investigators (Cochrane & Robertson, 1975; Paykel et al., 1975; Schotte & Clum, 1982), the results of this study indicate that negative life events are the culprit, the degree of positive life change is not

predictive of suicidal behavior.

Furthermore, the level of negative life stress reported was found to correlate positively with the degree of suicide intent as assessed by Beck et al.'s (1979) Scale for Suicide Ideators and with the level of hopelessness in this sample. That is, as negative life stress increased, so too did both hopelessness and suicide intent. It appears that as the number of problems the individual faced increased their confidence in their ability to overcome these problems decreased.

The model presented in this paper asserts that cognitive rigidity serves to mediate this relationship between negative life events, hopelessness and suicidal behavior. As has been noted previously, there is an increasing body of evidence which supports the contention that parasuicides, at least, are more cognitively rigid than non-suicidal control subjects (Levenson, 1972; Neuringer, 1964; Patsiokas, Clum, & Luscomb, 1979). This study extends these findings by demonstrating a relative deficit in divergent thinking in a sample of hospitalized, psychiatric patients placed on suicide observation status. Suicidal subjects in this sample were found to be significantly more rigid on the Alternate Uses Test (Wilson

et al., 1975) than matched controls.

Cognitive rigidity on the Alternate Uses Test has now been demonstrated in both subjects considered at risk for suicide and in parasuicides (Luscomb, Clum, & Patsiokas, 1979). Combined with the findings of investigations employing other means for assessing this construct (Levenson, 1972; Neuringer, 1964), these findings provide strong support for the notion that suicidal individuals tend to be rigid and inflexible in their approach to problem-solving.

Most important, however, is the finding that this rigidity is also evidenced in the suicidal subjects' inability to generate potential solutions for their own life problems. These subjects generated fewer than half as many alternative solutions for their life problems than a comparably depressed control group. Thus, this study demonstrated rigidity on both impersonal (e.g. the Alternate Uses Test) and interpersonal (e.g. the Modified Means-End Problem-Solving Procedure) problem-solving tasks. As was the case with negative life stress, this variable was found to contribute significantly to the prediction of suicide intent on Beck's (1979) Scale for Suicide Ideators.

The deficits in problem-solving ability among suicidal

subjects do not, however, stop here. These subjects are also more likely to focus on the potential negative ramifications of their attempts at problem-solving than are non-suicidal controls. That is, when asked to list the pros and cons of a given alternative, they generate a larger number of cons than do their equally depressed, yet non-suicidal peers. Although no causal relationship has been established, it may be that this factor contributes to the finding that they are also less likely to attempt to employ the alternatives they generate.

In addition to these findings, the suicidal subjects were, overall, observed to be poorer problem-solvers on the Means-End Problem-Solving Procedure (Platt, Spivack, & Bloom, 1971) than the non-suicidal subjects. On this measure, the control group members provided an average of 74% more relevant means for solving the problems presented than the suicidal subjects. The suicidal subjects stories were no less complex than those of the control subjects, that is there were no differences in the number of enumerations of means, obstacles or enumerated obstacles, rather, they were simply less capable of implementing effective solutions. This difference in the number of relevant means was also observed on the Modified-MEPS.

Overall, the suicidal subjects displayed deficits in problem-solving on both the MEPS and the Modified MEPS procedures. They were less able to generate potential solutions for interpersonal problems, including those selected from their own lives on the Modified MEPS. They were also more likely to focus on the negative consequences of these alternatives and to fail to employ them when solving their problems. Additionally, on both measures of interpersonal problem-solving skills, these subjects were unable to implement as many effective means of problem-solving.

Thus, difficulties in problem-solving were observed at several stages of the process. First, although equally able to identify problems when they occur, the suicidal subjects are less well equipped to generate potential solutions for these problems. Second, once generated, the suicidal subjects tend to expect a higher number of negative consequences, or side effects, of attempting to implement these solutions. It is not surprising, then, that these subjects employ fewer of their alternatives in attempting to solve the problem(s) at hand. Finally, in the last stage of problem-solving, implementation, these individuals resort to a higher number of irrelevant

attempts and a lower number of potentially effective solutions.

As hypothesized, suicidal individuals are poorer problem-solvers than equally depressed, non-suicidal controls. Specifically, it appears that their deficits in divergent thinking (e.g. cognitive rigidity), their tendency to focus on negative ramifications and their lowered liklihood of implementing alternatives generated render them relatively ineffectual problem-solvers. This finding appears to represent several key deficits in the problem-solving process of suicidal subjects. Thus, it appears that the process breaks down at several stages. It should also be noted that the depressed subjects employed for comparison in this study are also likely to be poor problem-solvers (Gotlib & Asarnow, 1979), suggesting that the relative deficits observed would be more marked if compared to the problem-solving skills of normals.

Within this sample, negative life stress and rigidity in interpersonal problem-solving were found to be primary factors in accounting for levels of suicide intent. The greater the level of negative life stress and the more pronounced the degree of cognitive rigidity, the higher the observed level of suicide intent in these subjects. This

is in accord with previous research (Schotte & Clum, 1982) with suicide ideators, in which those subjects who were the poorest problem-solvers and who experienced the highest levels of negative life stress had the highest level of suicide intent. The findings in regard to negative expectations for potential solutions and decreased implementation extend our knowledge of the problem-solving process in these subjects

As Motto (1977) has noted, suicidal individuals do indeed appear to be cognitively unprepared to deal with the high levels of life stress which they report experiencing. If previous research on the relationship of stress to cognitive rigidity (Appelzweig, 1954; Brown, 1953; Ross, Rupel & Grant, 1953) is generalizable to clinical cases, then it could be likely that this rigidity increases further under conditions of high life stress. Thus, the individuals rigidity may serve to both magnify and create stress through interfering with the subjects ability to engage in effective problem-solving.

This study also assessed the impact of modeling in the subjects' selection of suicide as a potential problem-solving strategy. Specifically, the number of suicidal models with which the subjects were socially

connected was evaluted. On this variable no significant differences were observed between the suicidal and the non-suicidal subjects. Thus, it appears that both groups of subjects were exposed to suicidal models.

As in research by other investigators (Beck et al., 1975; Kovacs et al., 1975; Minkoff et al., 1973; Motto, 1977; Schotte & Clum, 1982; Steele, 1977; Wetzel, 1976) the suicidal subjects in this sample were significantly more hopeless than the non-suicidal controls. Although Hopelessness Scale scores were found to be negatively correlated with both the number of relevant means and the number of no means (e.g. simply not attempting to solve the problem) on the MEPS, the contribution of this variable to suicide intent appears, however, to be independent of cognitive rigidity. In fact, hopelessness was not significantly correlated with either the number of alternatives generated or scores on the Alternate Uses Test. Rather, it appears that hopelessness effected the subjects degree of engagement in attempting to solve problems. That is, as hopelessness increased so too did the number of irrelevant means employed and the number of occasions on which the subjects simply did not try to solve the problem presented. It was not correlated with their

ability to engage in effective problem-solving when they attempted to do so. Thus, hopelessness contributed independently to suicide intent.

Hopelessness was also correlated with the level of negative life stress experienced. It is as if the subjects when exposed to continuing levels of negative life stress with which they do not have the cognitive capacity to cope, become increasingly hopeless and, as a result of this, simply quit trying to solve their problems. Hopelessness, then, appears less to be the result of poor problem-solving skills than it is a variable which, when present, further reduces the individual's ability to engage in effective problem-solving.

This finding is important in that it suggests that the hopelessness observed in this population has roots independent of the problem-solving deficits observed. That is, these subjects are both poor problem-solvers and hopeless. Both variables appear to contribute independently to the level of suicide intent. If viewed in terms of Goldfried and D'Zurrilla's (1971) model of problem-solving, these high levels of hopelessness can be said to interfere with the individual maintaining an effective general cognitive set regarding problematic

situations. Thus, rather than viewing problems as normal occurances with which we can cope, these individuals appear to view them as both unsolvable and unlikely to change. Combined with the findings discussed previously, this suggests that suicidal individuals have deficits at nearly every stage of the problem-solving process.

The research presented here does not address the source of hopelessness in these subjects. It may well be that the cognitive distortions postulated by Beck (1979) must be considered in addition to aiding the suicidal patient in developing effective problem-solving skills. Thus, it may be necessary to guide the patient in generating, evaluating and implementing potential alternative solutions to the problems they face and to address their negative orientation toward problem situations in general. Although Beck addresses both of these aspects of therapy with the suicidal patient, further research into the role of Beck's cognitive distortions in the production of hopelessness is desireable.

To summarize, this study supports previous research (Levenson, 1972; Neuringer, 1964; Patsiokas, Clum, & Luscomb, 1979) demonstrating rigidity of thinking in suicidal subjects. It appears that these subjects are

deficient in the ability to generate, evaluate and implement potential solutions for the problems they face, thereby rendering them especially vulnerable to the high levels of negative life stress observed here and elsewhere (Braucht, 1979; Cochrane & Robertson, 1975; Jacobson & Tribe, 1972; Luscomb, Clum, & Patsiokas, 1979; Schotte & Clum, 1982). Although modeling effects probably play a role in the individual's selection of suicide as a potential solution to chronic negative life stress, the overabundance of potential modeling sources in this culture would appear to make it difficult to assess the impact of this variable in smaller samples. Hopelessness, rather than resulting from these factors, appears to contribute independently to the development of suicide intent. Further research is necessary to more clearly elucidate the role of this variable.

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TABLE 1

Summary of Demographic Variables

	Suicidal Subjects	Non-Suicidal Subjects
Hospital		
VA (n)	27	26
State (n)	23	24
Number of Hospitalizations	3.46	3.38
Sex		
Male (n)	36	36
Female (n)	14	14
Age	28.1	31.7
Race		
White (n)	41	42
Non-White (n)	9	8
Diagnosis		
Schizophrenia	41	44
Major Depression	9	6
Score on Scale for Suicide Ideators	16.34	.84

TABLE 2

MANOVA

Overall Test for Significance Between Suicidal and Non-Suicidal Subjects

Wilk's Criterion

$$L = DET(E)/DET(H+E) = 0.412$$

$$\text{Exact } F = (1-L)/L*(NE+Q-P)/P$$

$$F(23,76) = 4.72$$

$$PROB. > F = 0.0001$$

TABLE 3

F Test Comparing Suicidal and Non-Suicidal Subjects on Negative Life Events

Source	DF	Sum of Squares	Mean Squares
Between Groups	1	1823.29	1823.29
Error	98	6136.82	62.62
Corrected Total	99	7960.11	

Source	DF	F Value	Prob. > F
Group	1	29.12	0.0001

TABLE 4

F Test Comparing Suicidal and Non-Suicidal Subjects on the Alternate Uses Test

Source	DF	Sum of Squares	Mean Squares
Between Groups	1	104.04	104.04
Error	98	993.32	10.14
Corrected Total	99	1097.36	

Source	DF	F Value	Prob. > F
Group	1	10.26	0.0018

TABLE 5

F Test Comparing Suicidal and Non-Suicidal Subjects on MEPS Relevant Means

Source	DF	Sum of Squares	Mean Squares
Between Groups	1	16.00	16.00
Error	98	215.24	2.19
Corrected Total	99	231.24	

Source	DF	F Value	Prob. > F
Group	1	7.28	0.0082

TABLE 6

F Test Comparing Suicidal and Non-Suicidal Subjects on Modified MEPS Alternatives Generated

Source	DF	Sum of Squares	Mean Squares
Between Groups	1	9.61	9.61
Error	98	117.38	1.20
Corrected Total	99	126.99	

Source	DF	F Value	Prob. > F
Group	1	8.0	0.005

TABLE 7

F Test Comparing Suicidal and Non-Suicidal Subjects on Modified MEPS Alternatives Employed

Source	DF	Sum of Squares	Mean Squares
Between Groups	1	58.64	58.64
Error	79	91.35	1.15
Corrected Total	80	150.00	

Source	DF	F Value	Prob. > F
Group	1	58.6	0.0001

TABLE 8

F Test Comparing Suicidal and Non-Suicidal Subjects on Modified MEPS Relevant Means

Source	DF	Sum of Squares	Mean Squares
Between Groups	1	38.44	38.44
Error	98	292.52	2.98
Corrected Total	99	330.96	

Source	DF	F Value	Prob. > F
Group	1	12.88	.0005

TABLE 9

F Test Comparing Suicidal and Non-Suicidal Subjects on Modified MEPS Irrelevant Means

Source	DF	Sum of Squares	Mean Squares
Between Groups	1	2.56	2.56
Error	98	27.68	0.28
Corrected Total	99	30.24	

Source	DF	F Value	Prob. > F
Group	1	9.06	.005

TABLE 10

F Test Comparing Suicidal and Non-Suicidal Subjects on Hopelessness Scale Scores

Source	DF	Sum of Squares	Mean Squares
Between Groups	1	361.00	361.00
Error	98	1411.76	14.41
Corrected Total	99	1772.76	

Source	DF	F Value	Prob. > F
Group	1	25.06	0.0001

TABLE 11

Stepwise Multiple Regression Summary Table

Criterion = Scale for Suicide Ideators (N = 100)

Variable Entered	R Squared	F	P ≥ F
Hopelessness	0.34	40.34	.0001
Alternatives Generated (Mod. MEPS)	0.49	5.33	.05
Negative Life Events	0.51	29.48	.0001

TABLE 12

Stepwise Multiple Regression Summary Table

Criterion = Scale for Suicide Ideators (N = 81)

Variable Entered	R Squared	F	P ≥ F
Alternatives Employed (Mod. MEPS)	0.32	46.91	.0001
Hopelessness	0.54	30.87	.0001
Mean Con Rating (Mod. MEPS)	0.56	4.13	.05

TABLE 13

Stepwise Multiple Regression Summary Table

Criterion = Suicidal vs. Non-suicidal (N = 100)

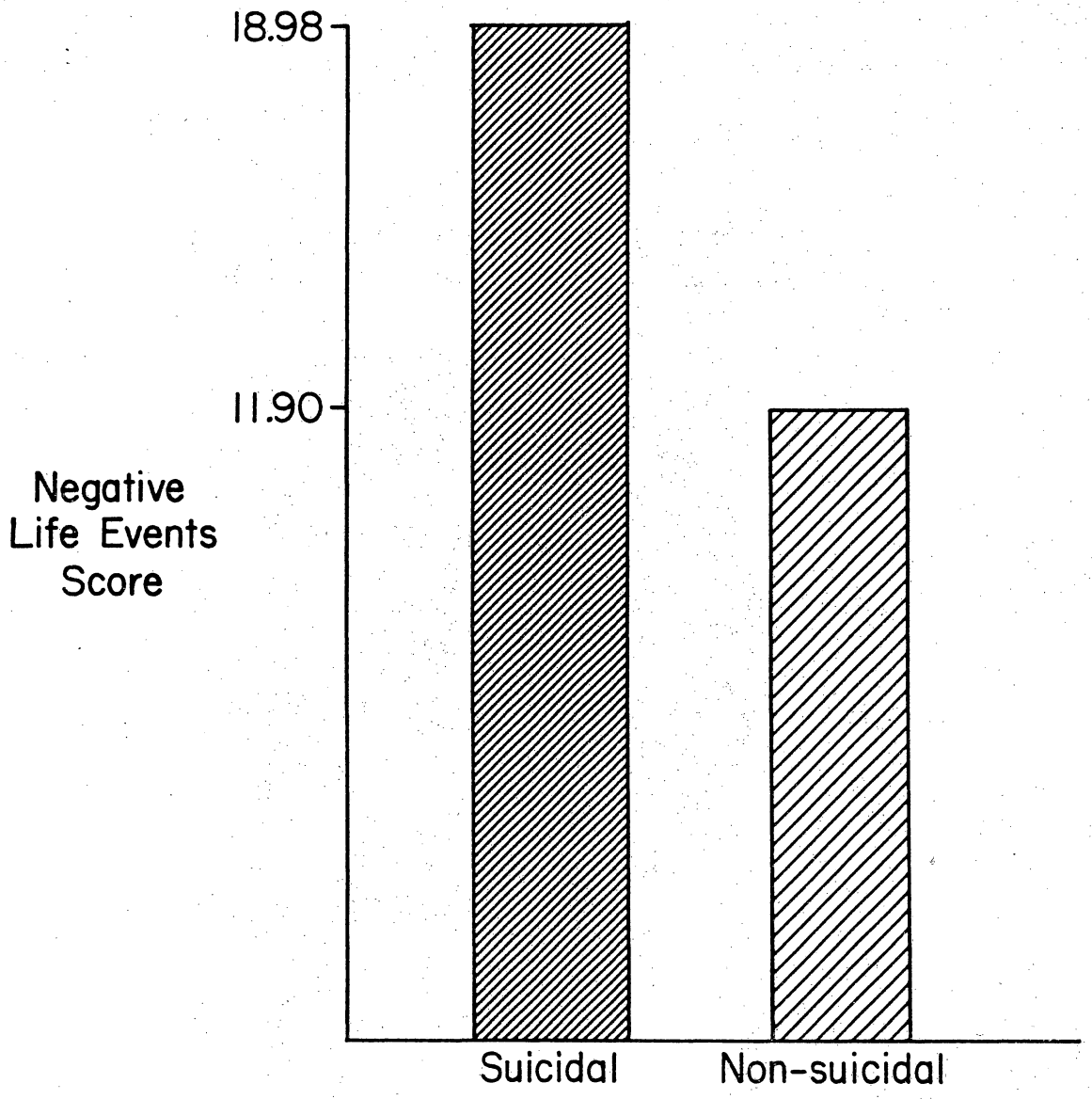
Variable Entered	R Squared	F	P ≥ F
Negative Life Events	0.22	16.79	.0001
Alternatives Generated (Mod. MEPS)	0.34	17.05	.0001
Hopelessness	0.41	11.28	.001

TABLE 14

Stepwise Multiple Regression Summary Table

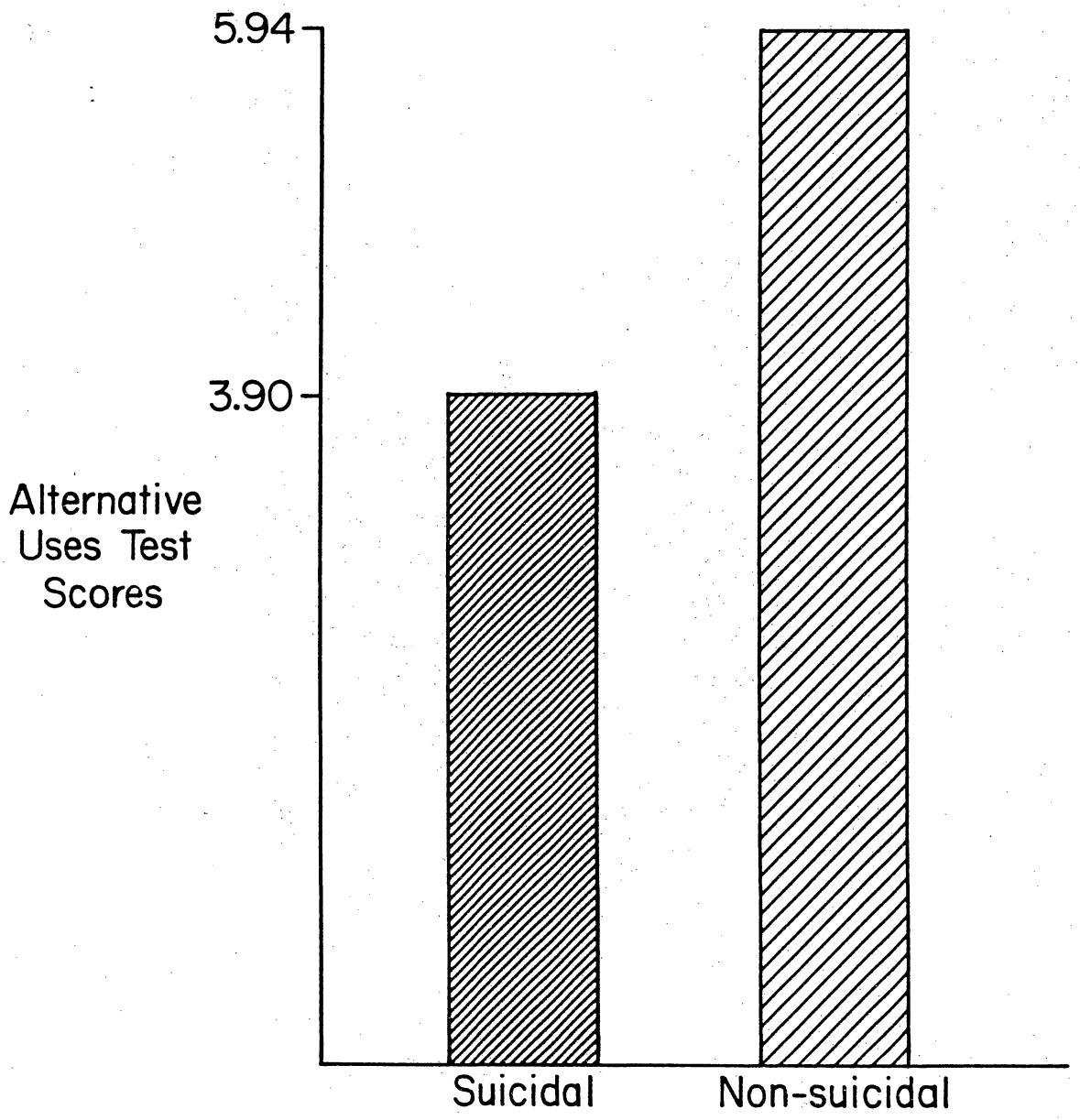
Criterion = Suicidal vs. Non-suicidal (N = 81)

Variable Entered	R Squared	F	P ≥ F
Number of Alternatives			
Employed (Mod. MEPS)	0.39	9.30	.005
Negative Life Events	0.50	45.80	.0001
Hopelessness	0.54	7.16	.01



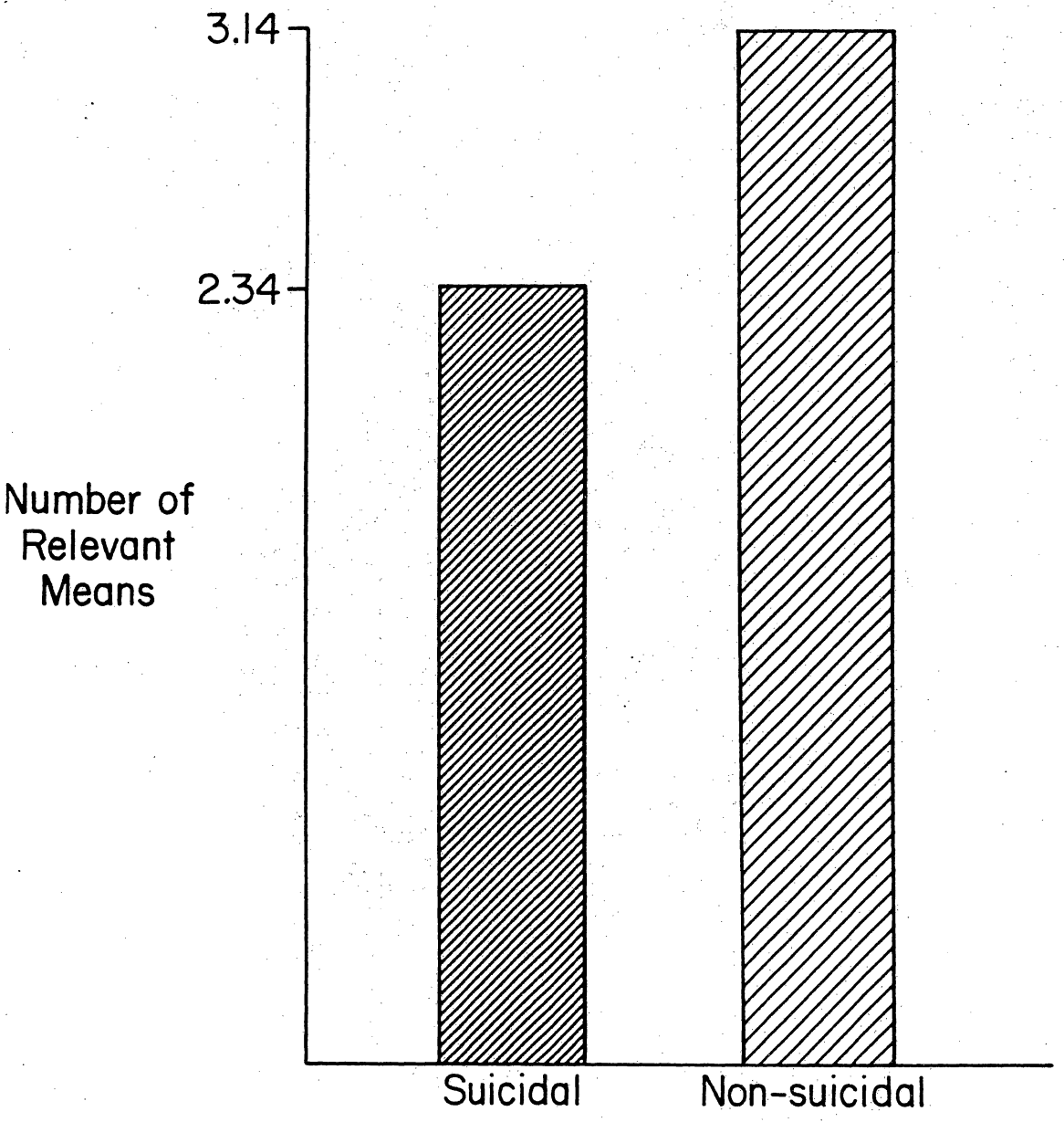
Group Means: Total Negative Life Events Score on Life Experiences Survey

FIGURE 1



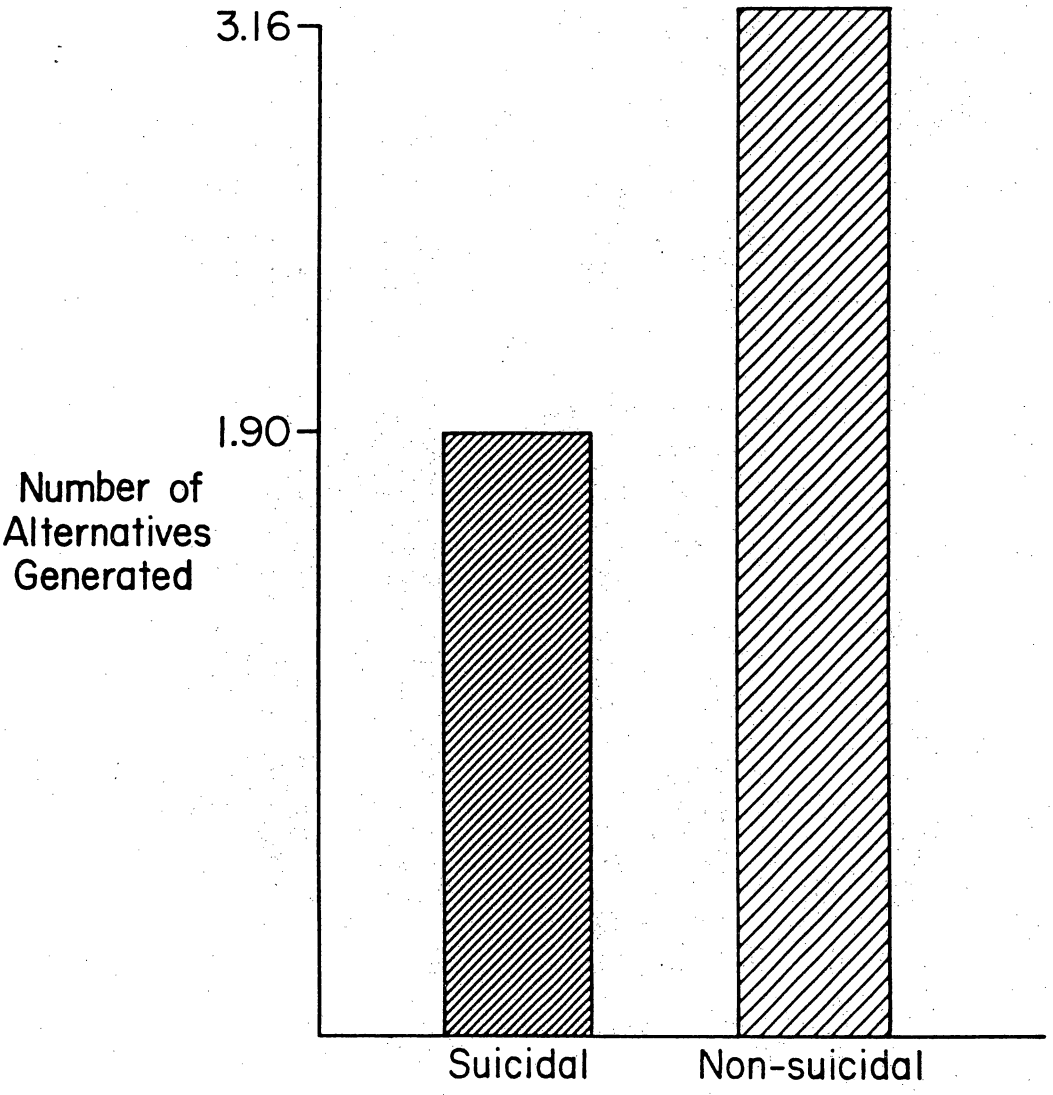
Group Means: Alternative Uses Test Scores

FIGURE 2



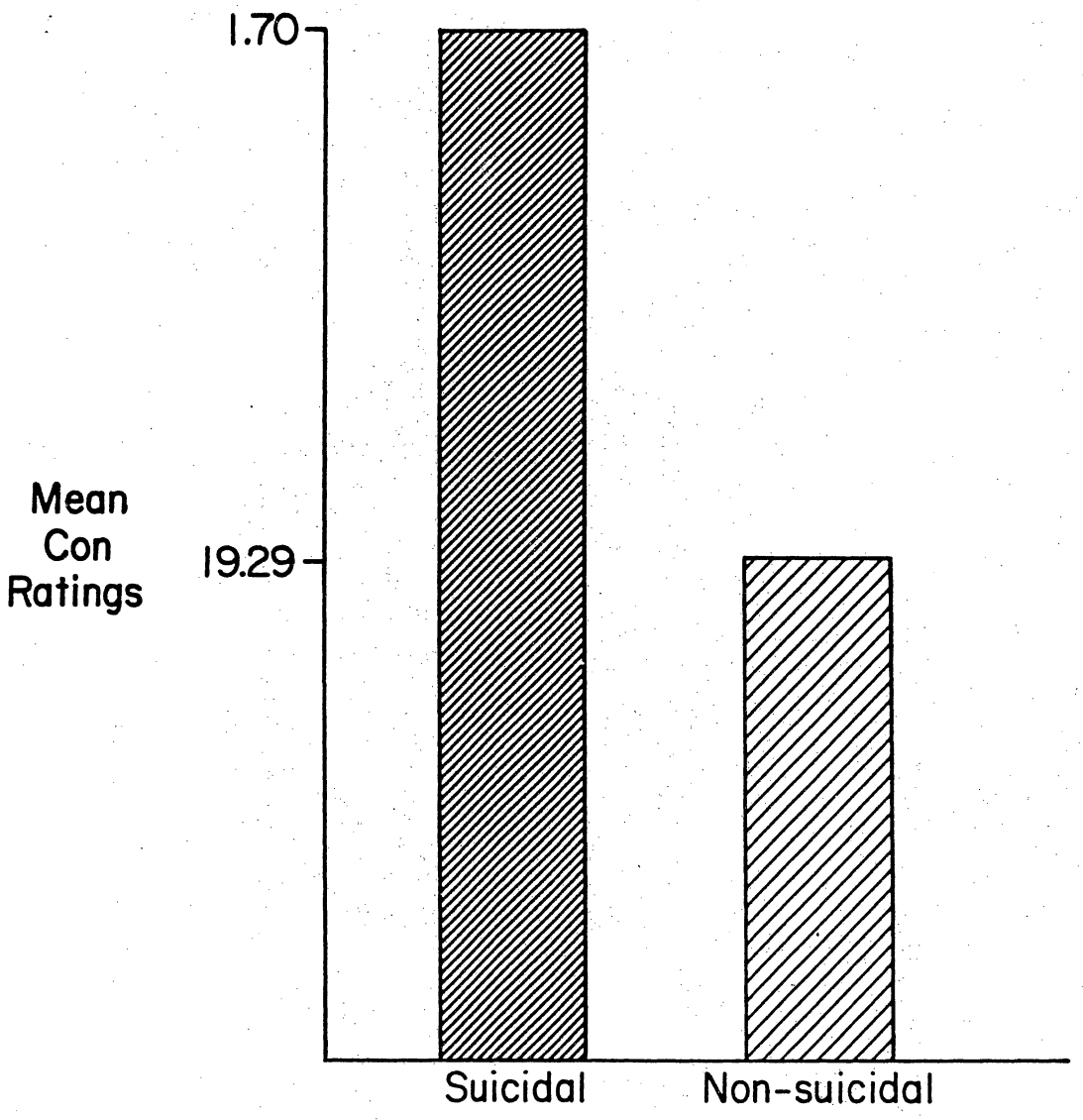
Group Means: Number of Relevant Means on Means-End Problem-Solving Procedure

FIGURE 3



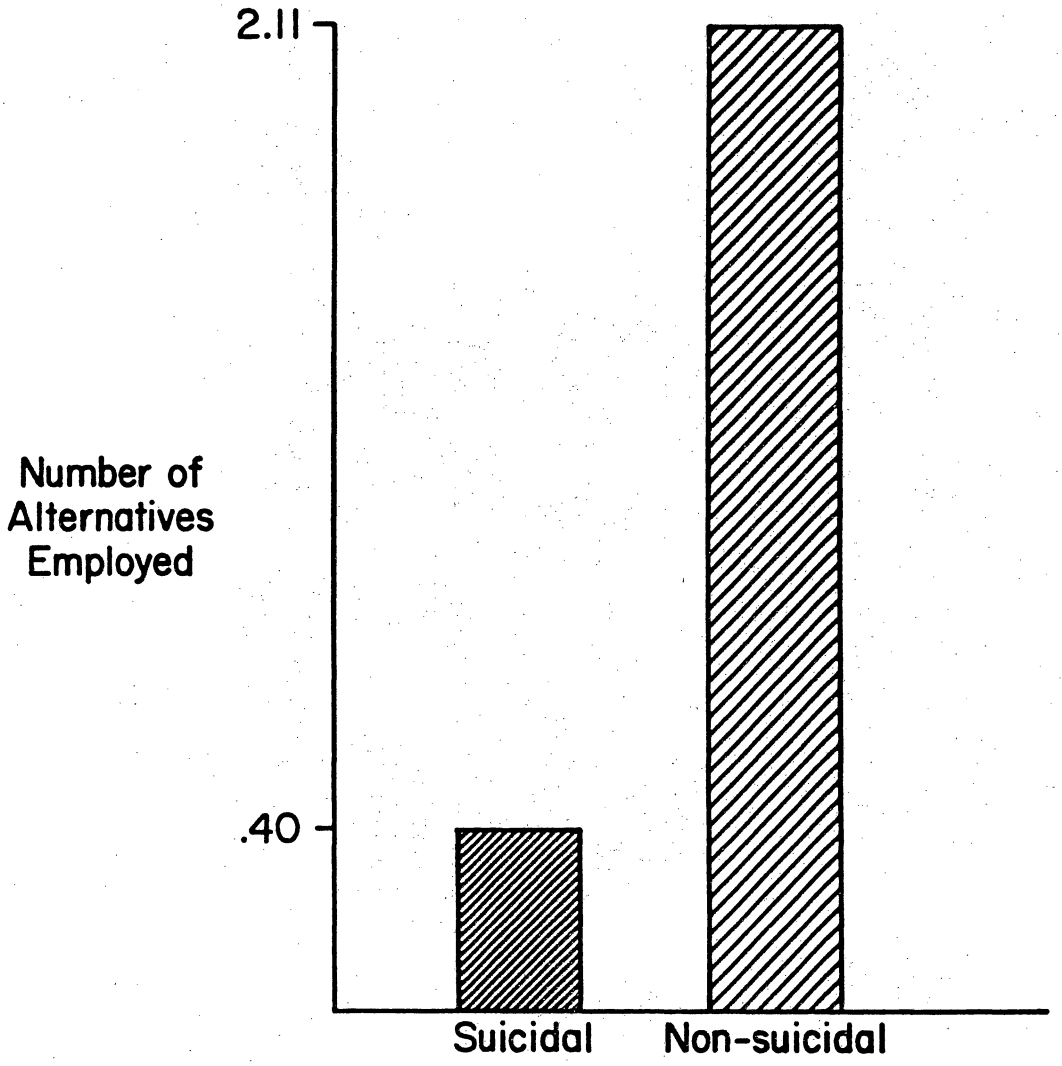
Group Means: Number of Alternatives Generated on Modified Means-End Problem-Solving

FIGURE 4



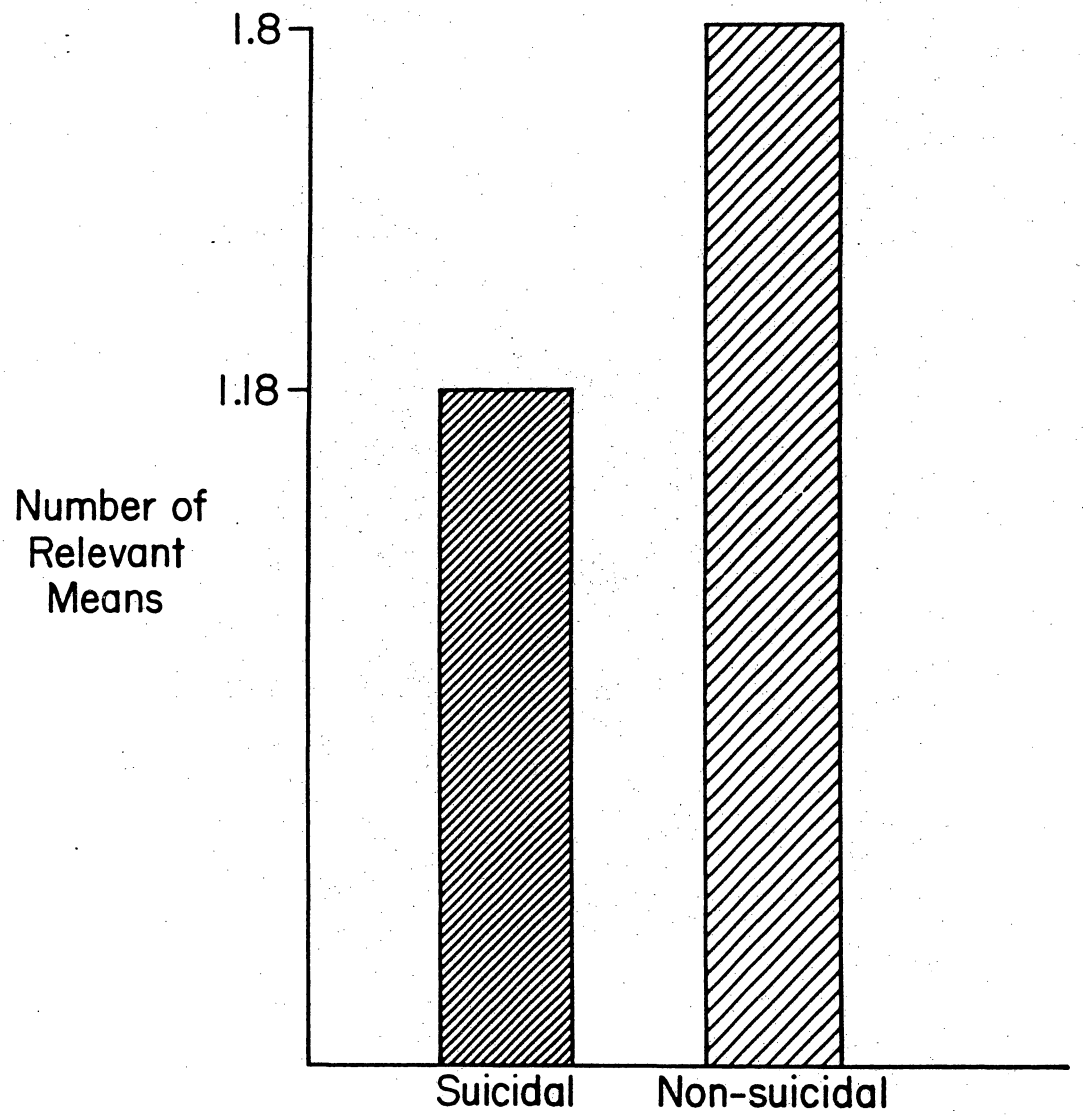
Group Means: Mean Con Ratings on Modified Means-End Problem-Solving Procedure

FIGURE 5



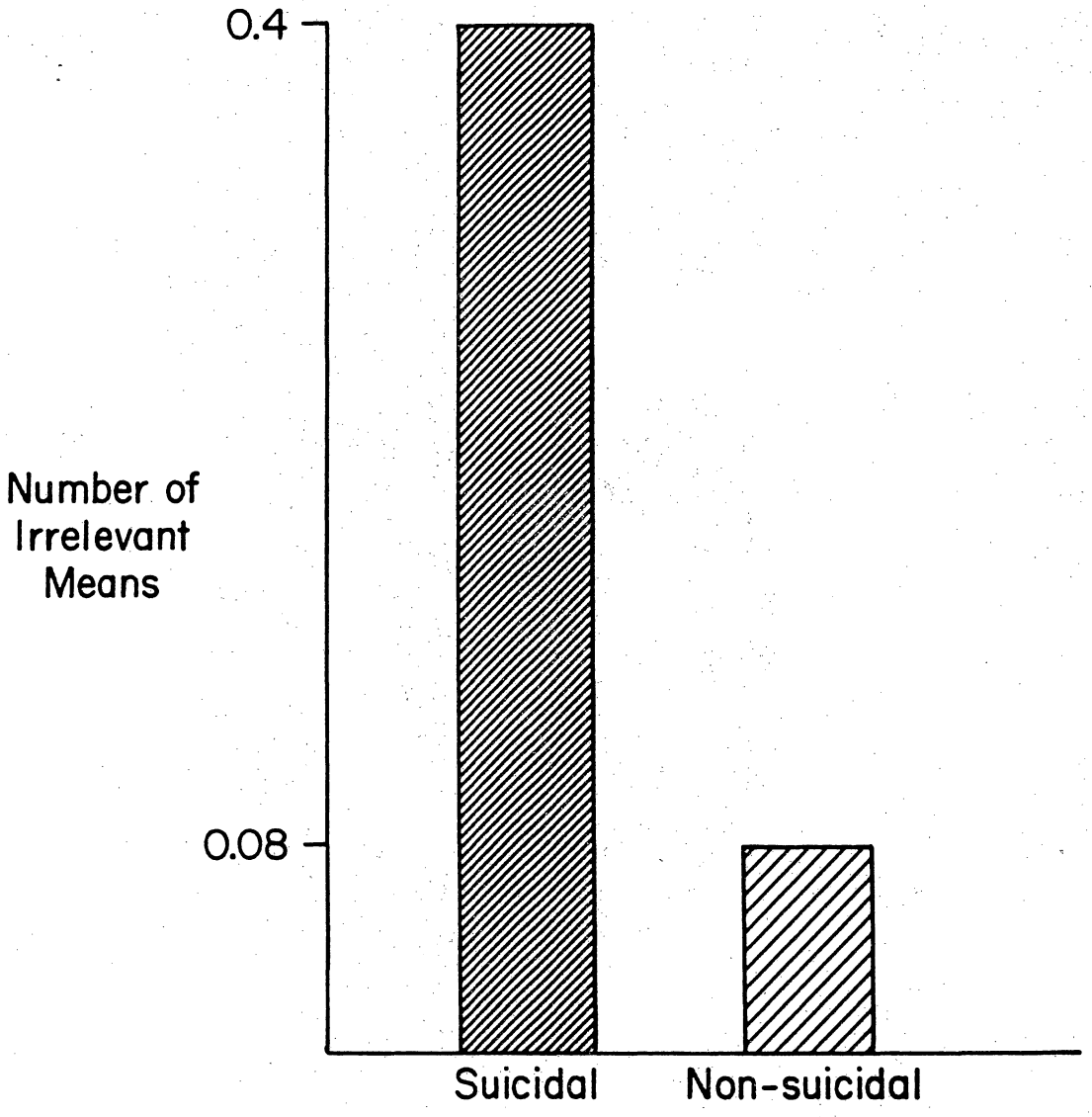
Group Means: Number of Alternatives Employed on Modified Means-End Problem-Solving

FIGURE 6



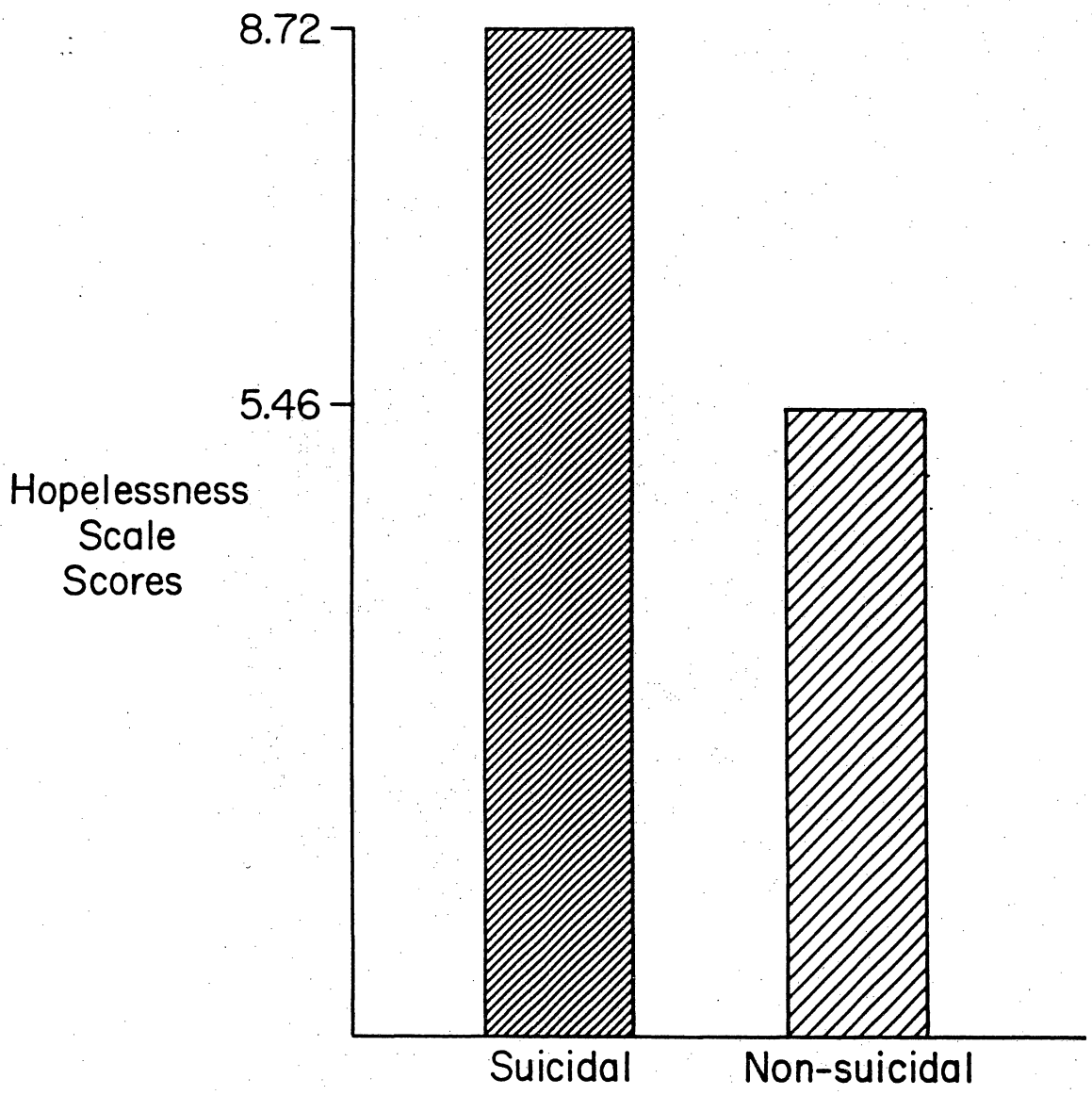
Group Means: Number of Relevant Means on Modified Means-End Problem-Solving

FIGURE 7



Group Means: Number of Irrelevant Means on Modified Means-End Problem-Solving

FIGURE 8



Group Means: Hopelessness Scale Scores

FIGURE 9

APPENDIX A

Scale for Suicide Ideators

1. Wish to live.
   0. Moderate to strong.
   1. Weak.
   2. None.
2. Wish to die.
   0. None.
   1. Weak.
   2. Moderate to strong.
3. Reasons for living/dying.
   0. For living outweigh dying.
   1. About equal.
   2. For dying outweigh living.
4. Desire to make active suicide attempt.
   0. None.
   1. Weak.
   2. Moderate to strong.
5. Passive suicidal behavior.
   0. Would take precautions to save life.
   1. Would leave life/death to chance.

2. Would avoid steps necessary to save or maintain life.

6. Time dimension: duration of suicide ideation/wish.
   0. Brief, fleeting periods.
   1. Longer periods.
   2. Continuous (chronic) or almost continuous.

7. Time dimension: frequency.
   0. Rare, occasional.
   1. Intermittant.
   2. Persistent or continuous.

8. Attitude toward ideation/wish.
   0. Rejecting.
   1. Amibivalent or indifferent.
   2. Accepting.

9. Control over suicide action/acting-out wish.
   0. Has sense of control.
   1. Unsure of control.
   2. Has no sense of control.

10. Deterrents to active attempt.
   0. Would not attempt because of a deterrent.
   1. Some concern about deterrents.
   2. Minimal or no concern about deterrents.

11. Reason for contemplated attempt.

    0. To manipulate the environment: attention, revenge.

    1. Combination of 0 and 2.

    2. Escape, surcease, solve problems.

12. Method: specificity/planning of contemplated attempt.

    0. Not considered.

    1. Considered but details not worked out.

    2. Details worked out/well-formulated.

13. Method: Availability/opportunity for contemplated attempt.

    0. Method not available, no opportunity.

    1. Method would take time, effort; opportunity not readily available.

    2a. Method and opportunity available.

    2b. Future opportunity or availability of method anticipated.

14. Sense of capability to carry out attempt.

    0. No courage, too weak, afraid, incompetent.

    1. Unsure of courage, competence.

    2. Sure of courage, competence.

15. Expectancy/anticipation of actual attempt.

    0, No.

    1. Uncertain, not sure.

    2. Yes.

16. Actual preperation for contemplated attempt.

    0. None.

    1. Partial preperation (e.g. started to collect pills).

    2. Complete (e.g. had pills, loaded gun).

17. Suicide Note.

    0. None.

    1. Started but not completed, thought about.

    2. Completed.

18. Final acts in anticipation of death (e.g. insurance, will).

    0. None.

    1. Thought about or made some arrangements.

    2. Made definite plans or completed arrangements.

19. Deception/concealment of contemplated attempt.

    0. Revealed ideas openly.

    1. Held back on revealing.

    2. Attempted to deceive, conceal, lie.

APPENDIX B

Life Experiences Survey

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. Please check those events which you have experienced in the recent past and indicate the time period during which you have expereinced each event. Be sure that all checkmarks are directly across from the items to which they corresppond.

Also, for each of the items listed below, please indicate the extent to which you viewed the event as having either a positive or a negative impact on your life at the time the event occurred. That is, indicate the type and extent of the impact the event had. A rating of -3 would indicate that the event had an extremely negative impact, a rating of 0 a neutral impact, and a +3 would indicate an extremely positive impact.

	0 to 6 mos.		
Section 1	6 mos to 1 yr.	Rating	
1. Marriage		-3 -2 -1 0 1 2 3	

Section 1	0 to 6 mos. / 6 mos to 1 yr.	Rating
2. Detention in jail or comparable institution.		-3 -2 -1 0 1 2 3
3. Death of spouse.		-3 -2 -1 0 1 2 3
4. Major change in sleeping habits.		-3 -2 -1 0 1 2 3
5. Death of a close family member:		
a. mother.		-3 -2 -1 0 1 2 3
b. father.		-3 -2 -1 0 1 2 3
c. brother.		-3 -2 -1 0 1 2 3
d. sister.		-3 -2 -1 0 1 2 3
e. grandmother.		-3 -2 -1 0 1 2 3
f. grandfather.		-3 -2 -1 0 1 2 3
g. spouse.		-3 -2 -1 0 1 2 3
h. other.		-3 -2 -1 0 1 2 3
6. Major change in eating habits.		-3 -2 -1 0 1 2 3
7. Foreclosure on mortagage or loan.		-3 -2 -1 0 1 2 3

Section 1	0 to 6 mos. 6 mos to 1 yr.	Rating
8. Death of a close friend.		-3 -2 -1 0 1 2 3
9 Outstanding personal acheivement.		-3 -2 -1 0 1 2 3
10. Minor law violation.		-3 -2 -1 0 1 2 3
11. Male: wife/girlfriend's pregnancy.		-3 -2 -1 0 1 2 3
12. Female: pregnancy.		-3 -2 -1 0 1 2 3
13. Changed work situation.		-3 -2 -1 0 1 2 3
14. New job.		-3 -2 -1 0 1 2 3
15. Serious illness or injury of close family member:		
a. father.		-3 -2 -1 0 1 2 3
b. mother.		-3 -2 -1 0 1 2 3
c. brother.		-3 -2 -1 0 1 2 3
d. sister.		-3 -2 -1 0 1 2 3

Section 1	0 to 6 mos. / 6 mos to 1 yr.	Rating
e. grandmother.		-3 -2 -1 0 1 2 3
f. grandfather.		-3 -2 -1 0 1 2 3
g. spouse.		-3 -2 -1 0 1 2 3
h. other.		-3 -2 -1 0 1 2 3
16. Sexual difficulties.		-3 -2 -1 0 1 2 3
17. Trouble with employer.		-3 -2 -1 0 1 2 3
18. Trouble with in-laws.		-3 -2 -1 0 1 2 3
19. Major change in financial status.		-3 -2 -1 0 1 2 3
20. Major change in closeness of family member.		-3 -2 -1 0 1 2 3
21. Gaining a new family member.		-3 -2 -1 0 1 2 3
22. Change of residence.		-3 -2 -1 0 1 2 3
23. Marital seperation.		-3 -2 -1 0 1 2 3
24. Major change in church activities.		-3 -2 -1 0 1 2 3
25. Marital reconciliation.		-3 -2 -1 0 1 2 3

Section 1	0 to 6 mos. / 6 mos to 1 yr.	Rating
26. Major change in number of arguments with spouse.		-3 -2 -1 0 1 2 3
27. Married male: change in wife's work outside home.		-3 -2 -1 0 1 2 3
28. Married female: change in husband's work.		-3 -2 -1 0 1 2 3
29. Major change in recreation.		-3 -2 -1 0 1 2 3
30. Borrowing more than 10,000 dollars.		-3 -2 -1 0 1 2 3
31. Borrowing less than 10,000 dollars.		-3 -2 -1 0 1 2 3
32. Being fired from a job.		-3 -2 -1 0 1 2 3
33. Male: wife/girlfriend having an abortion.		-3 -2 -1 0 1 2 3
34. Female: having abortion.		-3 -2 -1 0 1 2 3
35. Major personal illness or injury.		-3 -2 -1 0 1 2 3

Section 1	0 to 6 mos. 6 mos to 1 yr.	Rating
36. Major change in social activities.		-3 -2 -1 0 1 2 3
37. Major change in living conditions of family.		-3 -2 -1 0 1 2 3
38. Divorce.		-3 -2 -1 0 1 2 3
39. Serious injury or illness of close friend.		-3 -2 -1 0 1 2 3
40. Retirement.		-3 -2 -1 0 1 2 3
41. Son or daughter leaving home.		-3 -2 -1 0 1 2 3
42. Ending of formal schooling.		-3 -2 -1 0 1 2 3
43. Seperation from spouse.		-3 -2 -1 0 1 2 3
44. Engagement.		-3 -2 -1 0 1 2 3
45. Breaking up with boyfriend/girlfriend.		-3 -2 -1 0 1 2 3
46. Leaving home for first time.		-3 -2 -1 0 1 2 3
47. Reconciliation with boyfriend/girlfriend.		-3 -2 -1 0 1 2 3

Other recent experiences which have had an impact on your life. List:

48. _____ -3 -2 -1 0 1 2 3

49. _____ -3 -2 -1 0 1 2 3

50. _____ -3 -2 -1 0 1 2 3

APPENDIX C

Alternate Uses Test

In this test, you will be asked to consider some commmon objects. Each object has a common use, which will be stated. You are to list as many as six other uses for which the objects or parts of the objects could serve.

Example:

Given: A NEWSPAPER (used for reading). You might think of the following uses for a newspaper.

a._____

b._____

c._____

d._____

e._____

f._____

Notice that all of the uses listed are different from eachother and different from the primary use of a newspaper. Each acceptible use must be different from the others and from the stated use.

Do not spend too much time on any one item. Write down those uses that occur to you and go on to others in the same Part. You may return to the incomplete items in a Part if time for that Part permits.

There are two Parts to this test, with three items per Part. You will have four minutes for each Part.

STOP HERE. WAIT FOR FURTHER INSTRUCTIONS.

Part I

List as many as six possible uses for each of the following objects.

1. SHOE (used as footwear)

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

   f. _____

2. BUTTON (used to fasten things)

   a. _____

   b. _____

c. _____

d. _____

e. _____

f. _____

3. KEY (used to open a lock)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

STOP HERE. WAIT FOR FURTHER INSTRUCTIONS.

Part II

List as many as six possible uses for each item.

4. WOODEN PENCIL (used for writing)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

5. AUTOMOBILE TIRE (used on the wheel of an automobile)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

6. EYEGLASSES (used to improve vision)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

APPENDIX D

Self-Rating Depression Scale

Please answer according to the following key:

1="a little of the time" 2="some of the time" 3="a good part of the time" 4="most of the time."

1.	I feel down-hearted and blue.	1	2	3	4
2.	Morning is when I feel the best.	1	2	3	4
3.	I have crying spells or feel like it.	1	2	3	4
4.	I have trouble sleeping at night.	1	2	3	4
5.	I eat as much as I used to.	1	2	3	4
6.	I still enjoy sex.	1	2	3	4
7.	I notice that I am losing weight.	1	2	3	4
8.	I have trouble with constipation.	1	2	3	4
9.	My heart beats faster than usual.	1	2	3	4
10.	I get tired for no reason.	1	2	3	4
11.	My head is as clear as it used to be.	1	2	3	4
12.	I find it easy to do the things I used to do.	1	2	3	4
13.	I am restless and can't keep still.	1	2	3	4
14.	I feel hopeful about the future.	1	2	3	4

15.	I am more irritable than usual.	1	2	3	4
16.	I find it easy to make decisions.	1	2	3	4
17.	I feel that I am useful and needed.	1	2	3	4
18.	My life is pretty full.	1	2	3	4
19.	I feel that others would be better off if I were dead.	1	2	3	4
20.	I still enjoy the things I used to do.	1	2	3	4

APPENDIX E

The Hopelessness Scale

1. I look forward to the future with hope and enthusiasm. T F
2. I might as well give up because I can't make things better for myself. T F
3. When things are going badly I am helped by knowing that they can't stay that way forever. T F
4. I can't imagine what my life would be like in ten years. T F
5. I have enough time to accomplish the things I most want to do. T F
6. In the future, I expect to succeed in what concerns me most. T F
7. My future seems dark to me. T F
8. I expect to get more of the good things in life than the average person. T F
9. I just don't get the breaks, and there is no reason to believe I will in the future. T F
10. My past experiences have prepared me well for the future. T F

11. All I can see ahead of me is unpleasantness instead of pleasantness. T F
12. I don't expect to get what I really need. T F
13. When I look ahead to the future I expect I will be happier than I am now. T F
14. Things just won't work out the way I want them to. T F
15. I have great faith in the future. T F
16. I never get what I want so it is foolish to want anything. T F
17. It is very unlikely that I will get any real satisfaction in the future. T F
18. The future seems vague and uncertain to me. T F
19. I can look forward to more good times than bad times. T F
20. There's no use in really trying to get something I want because I probably won't get it. T F

APPENDIX F

Means-End Problem-Solving Procedure

Instrucitons

In this procedure we are interested in your imagination. You are to make up some stories. For each story you will be given the beginning of the story and how the story ends. Your job is to make up a story that connects the beginning that is given to you with the ending given you. In other words, you make up the middle of the story.

1. Mr. A. was listening to the people speak at a meeting about how to make things better in the neighborhood. He wanted to say something important and have a chance to be a leader too. The story ends with him being elected leader and presenting a speech. You begin the story at the meeting where he wanted to become a leader.

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2. H. loved his girlfriend very much, but they had many arguments. One day she left him. H. wanted to make things better. The story ends with everything fine between him and his girlfriend. You begin the story with his girlfriend leaving him after an argument.

3. Mr. C. had just moved in that day and didn't know anyone. Mr. C. wanted to have friends in the neighborhood. The story ends with Mr. C. having many good friends and feeling at home in the neighborhood. You begin the story with Mr. C. in his room immediately after arriving in the neighborhood.

4. A. noticed that his friends seemed to be avoiding him. A. wanted to have friends and be liked. The story ends when A.'s friends like him again. You begin where he first notices his friends avoiding him.

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5. One day K. was standing around with some other people when one of them said something very nasty to him. K. got very mad. K. got so mad he decided to get even with the other person. The story ends with K. happy because he got even. You begin the story when K. decided to get even.

APPENDIX G

Modified MEPS

STEP ONE: Please list below as many as ten different problems (such as marital problems, problems with friends or employers, financial difficulties, etc.) which you feel helped lead to your current hospitalization. Try to be as specific as you can in describing these problems.

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2) _____

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3) _____

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6) _____

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7) _____

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9) _____

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10) _____

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STEP TWO: Please read the following situation. You are given both a present situation and a desired outcome. Please read this carefully, you will be using this situation throughout the rest of this procedure.

PRESENT SITUATION:

•_____

•_____

•_____

•_____

DESIRED OUTCOME:

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STEP THREE: Now that you have read about the problem situation and the desired outcome, please list as many as six different things you could do to solve the problem. That is, write down as many as six different things you could do to reach the desired outcome. You will find space for each of your ideas on this page and on the five pages that follow; the spaces in which you are to write your answers are the ones numbered from one to six.

1) _____

. _____

0 1 2 3 4 5 6 7 8 9 10

Pros and Cons:

_____ -3 -2 -1 0 1 2 3

_____ -3 -2 -1 0 1 2 3

_____ -3 -2 -1 0 1 2 3

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2) _____

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0 1 2 3 4 5 6 7 8 9 10

Pros and Cons:

_____ -3 -2 -1 0 1 2 3

_____ -3 -2 -1 0 1 2 3

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3) _____

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0 1 2 3 4 5 6 7 8 9 10

Pros and Cons:

_____ -3 -2 -1 0 1 2 3

_____ -3 -2 -1 0 1 2 3

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4) _____

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0 1 2 3 4 5 6 7 8 9 10

Pros and Cons:

_____ -3 -2 -1 0 1 2 3

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5) _____

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0 1 2 3 4 5 6 7 8 9 10

Pros and Cons:

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6) _____

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0 1 2 3 4 5 6 7 8 9 10

Pros and Cons:

_____ -3 -2 -1 0 1 2 3

_____ -3 -2 -1 0 1 2 3

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_____ -3 -2 -1 0 1 2 3

STEP FOUR: Now that you have written down some of the things you think you could do to solve the problem (to reach the desired outcome), please go back and circle the number below each alternative which you believe is closest to how likely that action would be to solve the problem. If you think there is no chance that it will work, circle the number 1. If you think there is a fair chance that it will work, circle the number 5. If you are sure it will work, circle the number 10. Just circle any number between 0 and 10 that you think shows how likely that plan is to work.

STEP FIVE: Now that you have told us how likely each plan is to work, please go back to the different ideas you wrote down and tell us what the Pros (good things, benefits, etc.) of each plan are, and what the Cons (bad things, costs, etc.) are for each of these. For example, you may think one of your ideas might make someone mad, this would be a Con (bad thing). Or, you might think one of your ideas might make someone happy and solve the problem at the same time, this would be a Pro (good thing). Please list as many as six Pros and Cons for each plan you wrote down.

STEP SIX: Now go back and rate how important each Pro and Con is. If a Pro is very good or important, circle the number 3. If it is only fairly important, circle the number 2. If it is only a little important or good, circle the number 1. If a con is very bad, circle the -3. If it is fairly bad, circle the -2. If it is only a little bad, circle the -1. Finally, if it does not matter, circle the 0.

STEP SEVEN: Now we would like you to write a story in which you go about acheiving the desired outcome. That is, we want you to write a story in which you solve the problem which you have been working on in this task. Begin with the beginning you are given and write the middle part of the story. Here are the beginning and ending for your story.

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Please write your story:

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PROBLEM-SOLVING SKILLS IN SUICIDAL PSYCHIATRIC PATIENTS

by

David Evert Schotte, M.S.

(ABSTRACT)

Both popular clinical folklore and the findings of empirical research have suggested a relationship between cognitive rigidity and suicidal behavior. Specifically, it has been hypothesized that individuals deficient in the capacity for flexible thought become increasingly hopelessness and suicidal in the face of high levels of environmental stress. That is, these persons are thought to be cognitively unprepared to deal with negative life events. The present study sought to evaluate this model with hospitalized psychiatric patients placed on suicidal precautions status by hospital staff. Suicidal and non-suicidal control subjects completed measures of life stress, depression, cognitive rigidity, hopelessness, and suicidal intent. In addition, these subjects also completed two measures of interpersonal problem-solving. Suicidal subjects were found to report higher levels of negative life stress in the previous year than members of the control group. Suicidal subjects were also significantly more cognitively rigid and this rigidity

appears to have been reflected in their performance on the interpersonal problem-solving measures. Overall, suicidal subjects were observed to be poorer problem-solvers than the non-suicidal control group members on both measures of interpersonal problem-solving skills. More specific analyses showed that these subjects were not able to generate as many potential solutions to interpersonal problems from their own lives and when asked to evaluate these solutions, the suicidal subjects tended to rate them more negatively than did the control subjects. Suicidal subjects were also less likely than control subjects to employ these alternatives when subsequently attempting to solve the presented problem. Additionally, the suicidal subjects tended more often to implement irrelevant solutions. Although the suicidal subjects were significantly more hopeless than the non-suicidal subjects, it appears that this variable contributed independently to the level of suicide intent, rather than resulting from cognitive rigidity and interpersonal problem-solving deficits. Results are interpreted as supporting Beck's (1979) viewpoint that both deficits in problem-solving skills and hopelessness need to be addressed in the treatment of suicidal patients.